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# Mathematics

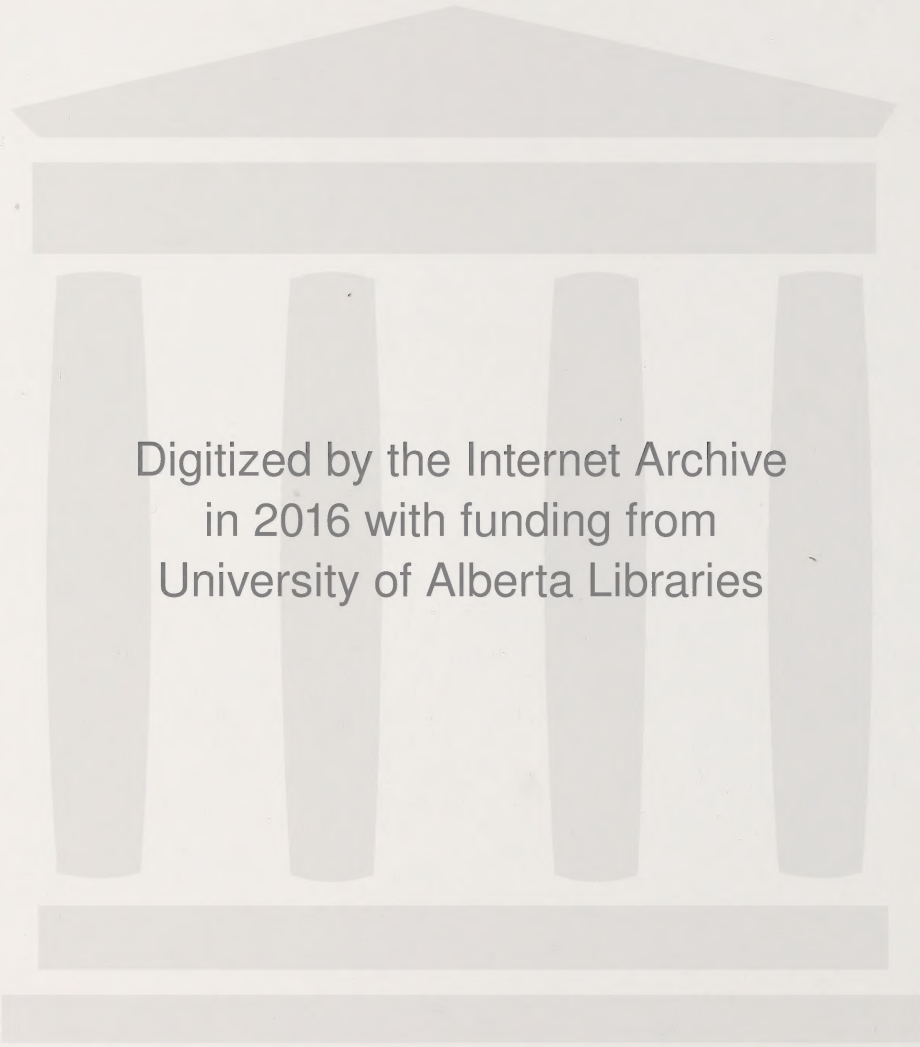


## Module 8



Distance  
Learning





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# Mathematics

## Module 8



**Distance  
Learning**



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This document is intended for

Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



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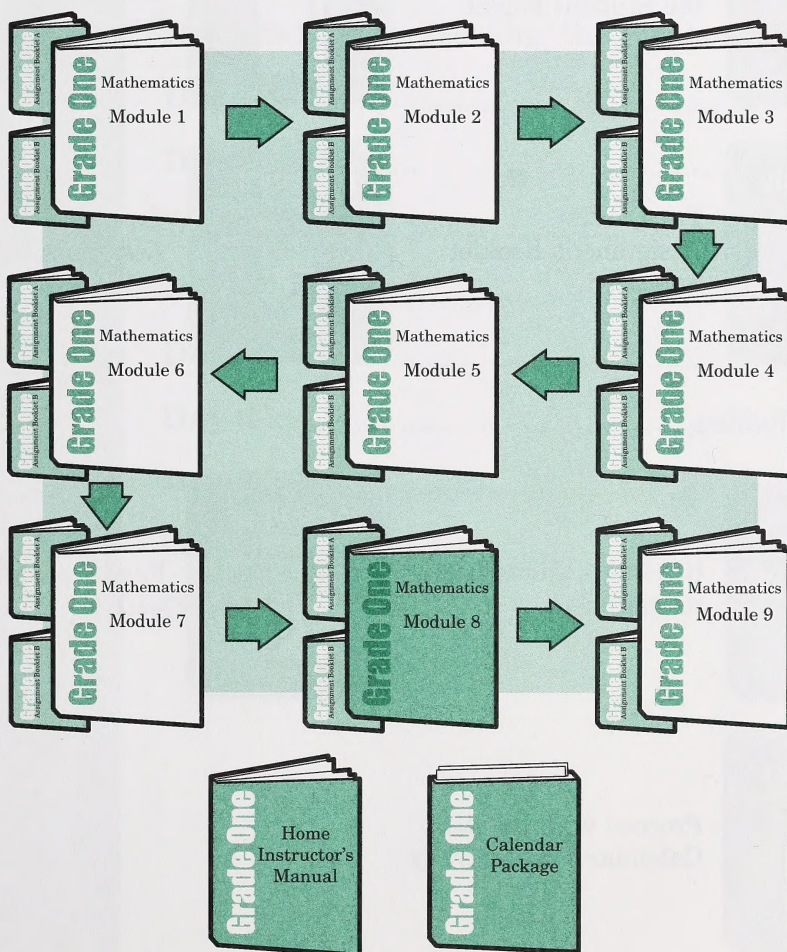


## Course Overview and Basic Components

Welcome to the Grade One Mathematics program.

The booklet you are presently reading is called a Student Module Booklet. It will take you through the course and show you, step by step, what to do with the student and how to do it. The activities you do will prepare the student for the assignments.

Grade One Mathematics contains nine modules. Each module has two Assignment Booklets. The module you are working on is highlighted in a darker colour. The two other basic course components—a Home Instructor's Manual and a Calendar Package—are also highlighted.





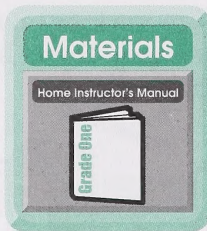
## Visual Cues

Throughout the Grade One Mathematics program, you will find visual cues that indicate a material needed or an activity to carry out. Read the following explanations to discover what each icon prompts you to do.

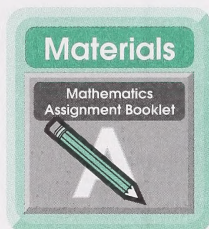
### Icons: Materials



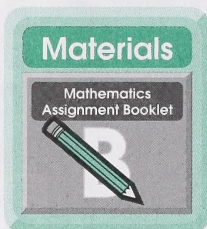
Place an item in the Student Folder.



Turn to the Home Instructor's Manual for further information.



Turn to the Assignment Booklet indicated.

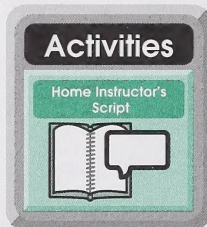


Turn to the Assignment Booklet indicated.

### Icons: Activities



Read this information to yourself.



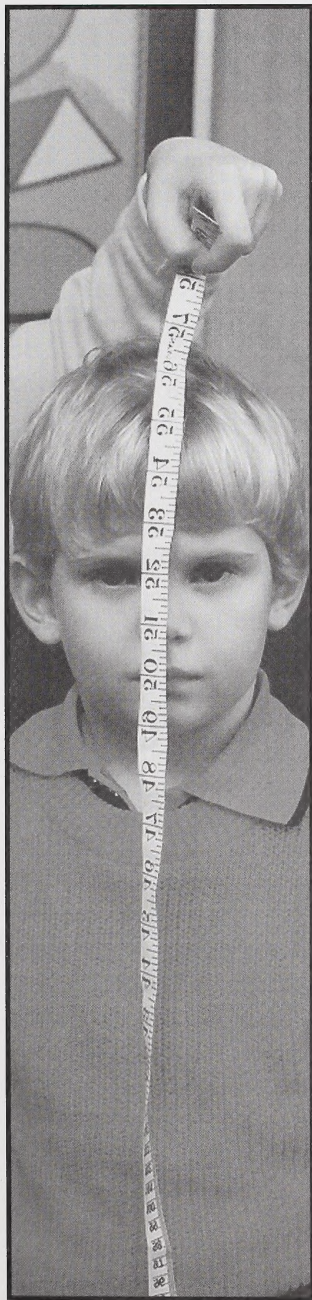
Read this information with the student.



Proceed with the daily Calendar Time activity.




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# Mathematics

## Module 8 Overview

Welcome to Grade One Mathematics Module 8.

The first lesson in this module is about Statistics and Probability and how this topic is encountered frequently. In the rest of the module, the student will plan and collect data to read, compare, and draw conclusions about measurement.

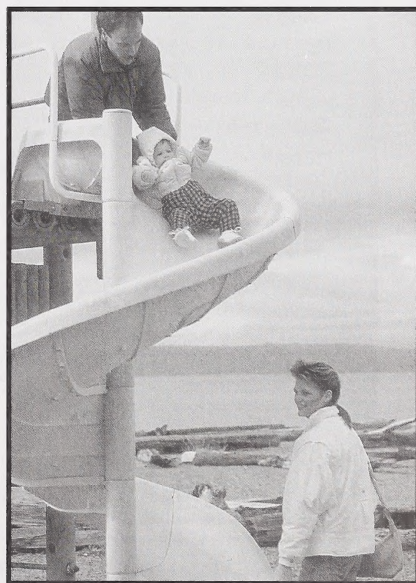
Most people use some form of measurement daily. One of the main reasons for including measurement in the elementary curriculum is that measuring has many practical applications.

Measuring also helps the child learn other concepts in mathematics, such as estimating, counting, adding and subtracting, and problem solving.

Each day's lesson has four main elements. All four are important parts of the program.

- Developing the Concept
- Applying the Concept
- Enrichment
- Assignments

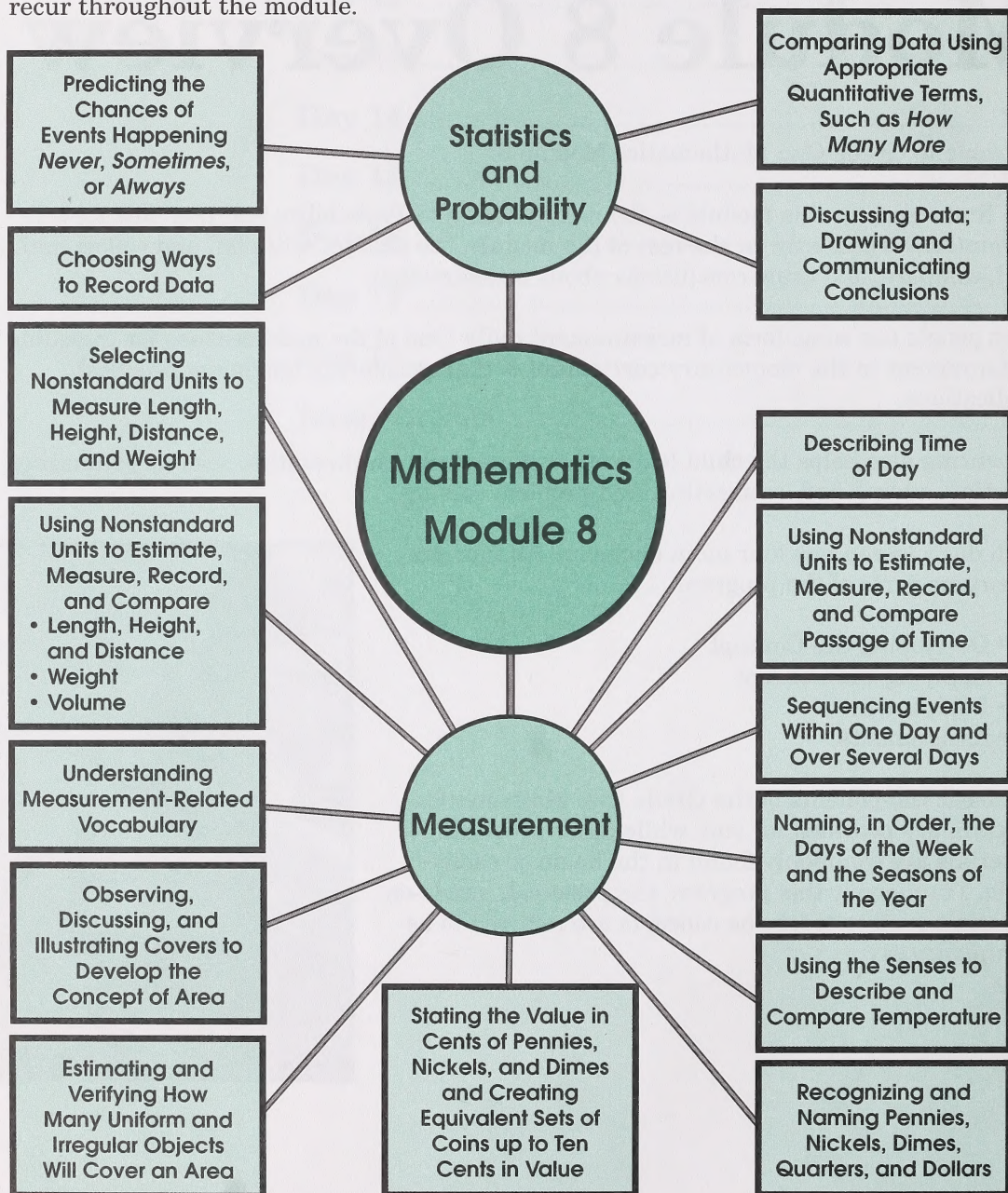
The basic components of the Grade One Mathematics program are provided for you, while other practical materials are commonly found in the home or easily made. Throughout this program, the practical, hands-on materials used to teach the concepts are referred to as *manipulatives*.





## Module Web Chart

This chart highlights the main topics for this module. Statistics and Probability recur throughout the module.





## Mathematics Module Submissions

### Materials

Student Folder



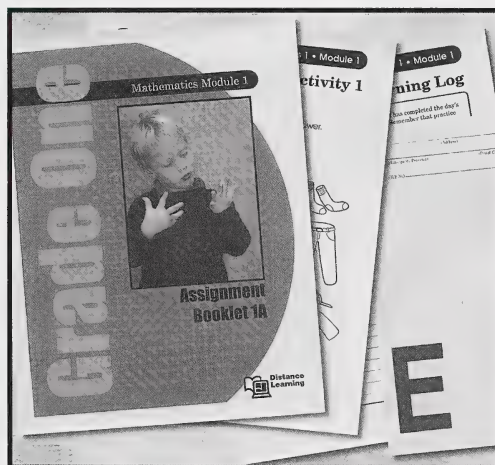
Place completed items in the Student Folder when you see this icon. On Day 9 and Day 18 of each module, you will find a checklist in the Assignment Booklet to help you compile items for submission to the child's teacher. The teacher will let you know when to provide these items for marking.

### Materials

Home Instructor's Manual



**Note:** The Student Folder is not included with the basic course components. Refer to the Home Instructor's Manual for information on the Student Folder.



## Calendar Time

### Activities

Calendar Time



Many essential concepts are learned through the calendar activities that begin each lesson. If your student is not enrolled in the accompanying Grade One Thematic program, refer to the Calendar Package for information, activities, and resources.



## Additional Resources

The basic mathematics resources for this module are provided. You could extend these with additional resources from a public or school library. Listed below are concept-related books to enrich this module. You could also investigate the many math games and computer programs on the market.

### Statistics and Probability Concept Books

#### Data Analysis: Estimation

- Dubanevich, Arlene. *Pigs in Hiding*. 1983.  
Lobel, Arnold. "The Journey" from *Mouse Tales*. 1985.  
Lottridge, Celia B. *One Watermelon Seed*. 1986.

#### Data Analysis: Prediction

- Burningham, John. *Would You Rather ....* 1978.  
Gackenbach, Dick. *Supposes*. 1989.  
Ginsburg, Mirra. *Mushroom in the Rain*. 1987.

#### Data Analysis: Graphing

- Anno, Mitsumasa. *Anno's Counting Book*. 1977.  
Bogart, Jo Ellen. *Ten for Dinner*. 1989.  
Cleaver, Elizabeth. *ABC*. 1984.  
Hoban, Tana. *Is It Rough? Is It Smooth? Is It Shiny?* 1984.

### Measurement Concept Books

#### Measurement: Length and Size

- Bourgeois, Paulette. *Big Sarah's Little Boots*. 1987.  
Briggs, Raymond. *Jim and the Beanstalk*. 1989.  
Burton, Virginia Lee. *Katy and the Big Snow*. 1971.  
Carle, Eric. *Papa Please Get the Moon for Me*. 1986.  
Hutchins, Pat. *You'll Soon Grow Into Them, Titch*. 1985.  
Kellogg, Steven. *Much Bigger Than Martin*. 1976.  
Lopshire, Robert. *The Biggest, Smallest, Fastest, Tallest Things You've Ever Heard Of*. 1980.  
Munsch, Robert. *David's Father*. 1983.  
Munsch, Robert. *The Boy in the Drawer*. 1982.  
Myller, Rolf. *How Big Is a Foot?* 1972.

#### Measurement: Mass

- Boynton, Sandra. *If at First*. 1980.  
Burningham, John. *Mr. Gumpy's Motor Car*. 1984.  
Ets, Marie H. *Elephant in a Well*. 1972.  
Galdone, Paul. *The Three Billy Goats Gruff*. 1973.  
Galdone, Paul. *What's in Fox's Sack?* 1982.  
Kroll, Steven. *The Biggest Pumpkin Ever*. 1984.

#### Sequencing

- de Paola, Tomie. *Flicks*. 1979.  
Hutchins, Pat. *Clocks and More Clocks*. 1970.  
Lester, Helen. *It Wasn't My Fault*. 1985.  
Numeroff, Laura J. *If You Give a Mouse a Cookie*. 1985.

#### Measurement: Capacity

- Barkan, Joanne. *My Cooking Spoon*. 1989.  
Barkan, Joanne. *My Measuring Cup*. 1989.  
Carle, Eric. *The Very Hungry Caterpillar*. 1979.  
Fujikawa, Gyo. "The Crow and the Pitcher" in *Fairy Tales and Fables*. 1970.  
King, Phyllis. *Hungry Cat*. 1986.  
Lord, John Vernon. *The Giant Jam Sandwich*. 1973.  
Mahy, Margaret. *Jam*. 1986.  
Wildsmith, Brian. *The Apple Bird*. 1983.

#### Measurement: Time

- Base, Graeme. *The Eleventh Hour*. 1989.  
Bourgeois, Paulette. *Hurry Up Franklin*. 1989.  
Brooks, Judy. *Around the Clock*. 1980.  
Carlstrom, Nancy White. *Jesse Bear, What Will You Wear?* 1986.  
Grey, Judith. *What Time Is It?* 1981.  
Hawkins, Colin. *What's the Time, Mr. Wolf?* 1986.  
Kalman, Bobbie and Susan Hughes. *Time and the Seasons*. 1986.  
Mendoza, George. *The Scarecrow Clock*. 1971.  
Steinmetz, Leon. *Clocks in the Woods*. 1979.  
Warren, Cathy. *The Ten-Alarm Camp-Out*. 1983.



Anno, Mitsumasa. *All in a Day*. 1986.  
Barrett, Judith. *Benjamin's 365 Birthdays*. 1978.  
Cleveland, David. *The April Rabbits*. 1988.  
Clifton, Lucille. *The Boy Who Didn't Believe in Spring*. 1973.  
de Regniers, Beatrice. *Little Sister and the Month Brothers*. 1984.  
Gibbons, Gail. *The Seasons of Arnold's Apple Tree*. 1984.  
Handy, Libby. *Boss for a Week*. 1982.  
Lionni, Leo. *Frederick*. 1987.  
Prater, John. *On Friday Something Funny Happened*. 1982.

Shulevitz, Uri. *One Monday Morning*. 1967.  
Tibo, Gilles. *Simon and the Snowflakes*. 1988.

Fujikawa, Gyo. "The Sun and the Wind" and "Why Evergreens Keep Their Leaves" in *Fairy Tales and Fables*. 1970.

Munsch, Robert. *Fifty Below Zero*. 1986.

Van Leeuwen, Jean. *Too Hot for Ice Cream*. 1974.

Brenner, Barbara. *The Five Pennies*. 1964.  
Hall, Donald. *Ox-Cart Man*. 1979.

The diagram illustrates the process of data collection and analysis. It includes a table for recording data, a die, a pie chart, and a bar chart.

**Table 1: Data Collection**

What to Measure	What to Use	Estimate	Measure

**Table 2: My Estimate vs. My Hands**

My Estimate	My Hands
10 hands	11 hands
12 hands	6 hands
14 hands	6 hands
16 hands	20 hands
18 hands	3 hands

**Die:** A six-sided die is shown with faces labeled red, blue, and green. The red face is labeled 'red', the blue face is labeled 'blue', and the green face is labeled 'green'.

**Pie Chart:** A pie chart is shown with three segments: red, blue, and green. The red segment is labeled 'red', the blue segment is labeled 'blue', and the green segment is labeled 'green'. An arrow points from the red segment to the 'red' label.

**Bar Chart:** A bar chart is shown with three bars: red, blue, and green. The red bar is labeled 'red', the blue bar is labeled 'blue', and the green bar is labeled 'green'. An arrow points from the red bar to the 'red' label.

[illegible]





Social

Physical

Intellectual

Creative

Emotional

Home Schooling:  
Teaching the Whole Child

# Day 1



## Calendar Time

**Time recommended: 10 minutes**

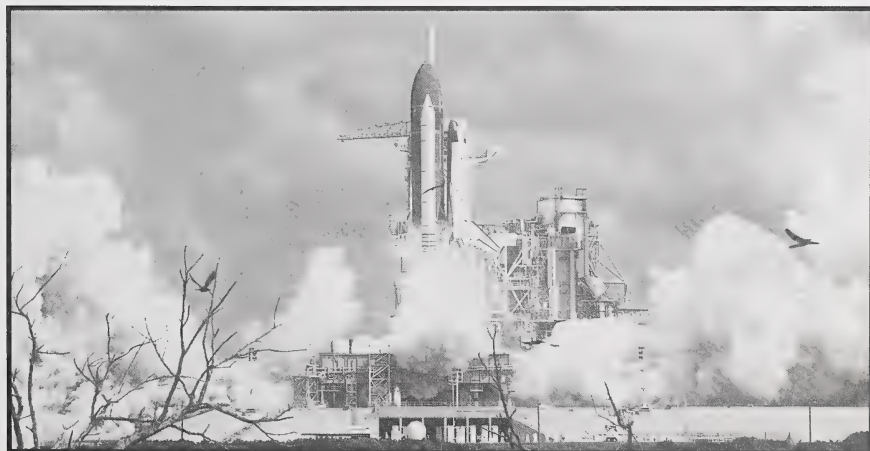
If your student is enrolled in the accompanying Grade One Thematic program, you will already have completed Day 1, Calendar Time. In that case, proceed directly with the remainder of Math Time.

If your student is not enrolled in the accompanying Thematic program, then refer to the Calendar Package for further information before proceeding with today's lesson.

## Focus for Today

**Time recommended: 45 minutes**

- predicting the chances of events happening, using the terms *never*, *sometimes*, and *always*
- using an appropriate recording method to collect data
- discussing data to draw and communicate appropriate conclusions





## Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten.

predict/predicting

test/testing

graph/graphing

never

sometimes

always

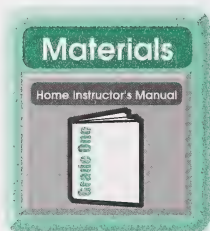
column

predictions

possibilities

## Materials Required

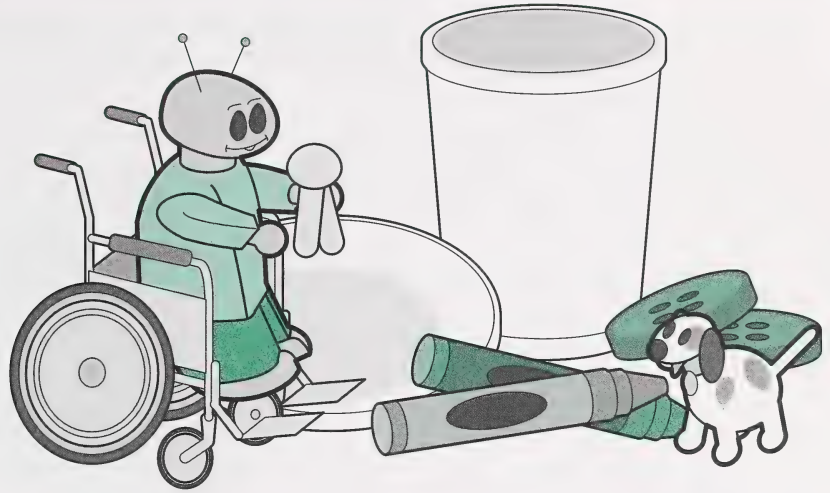
Certain materials are required on a regular basis throughout the Grade one program. These are the basic school supplies, such as pencils, paper, glue, and scissors. If your student is not registered in the accompanying Grade One Thematic program, then prepare a box containing these materials for your use during the Grade One Mathematics program.



See the Home Instructor's Manual for further information on the Master List of Required Materials.

- box of required materials from the master list
- plain white paper plate
- paper rivet
- red and blue crayons
- strip of construction paper about 15 centimetres long
- two- or three-sided objects, for example, coins, buttons, or paper cups (optional)





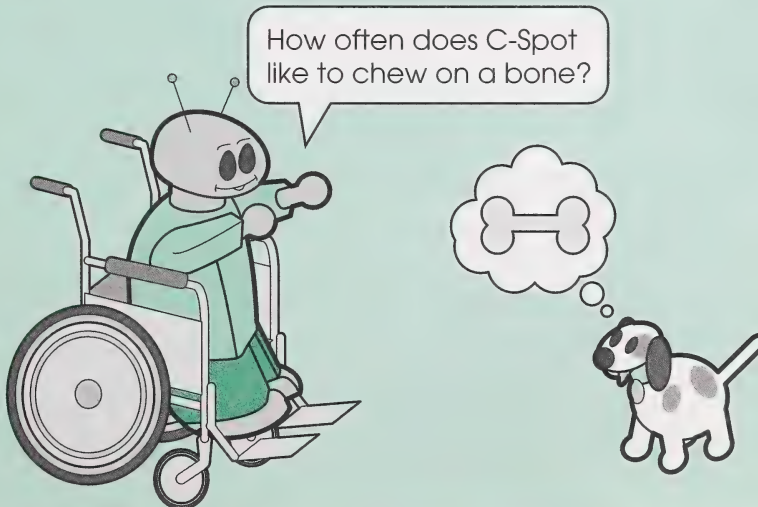
## Developing the Concept

### Activities

#### Teaching Tip

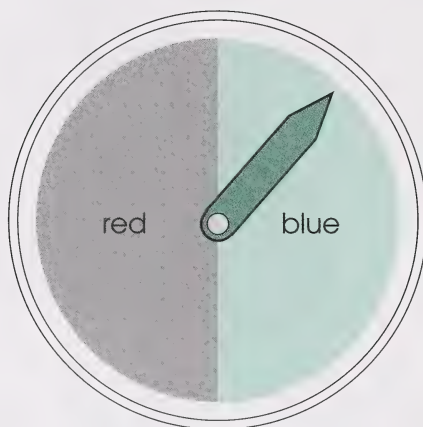


**Statistics and probability** are significant topics for elementary grades. This focus reflects the growing importance of probability and statistics in our daily lives. The study of these topics promotes critical-thinking skills, develops number sense, and gives practice with adding, subtracting, and other important concepts. Valuable strategies today are **predicting**, **testing**, and **graphing**.



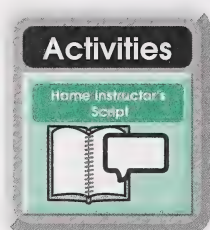


Use a paper plate, a paper rivet, red and blue crayons, and construction paper to make a spinner similar to the one that follows.



Colour one-half of the paper plate red and the other half blue. Make the arrow from a small strip of construction paper. On the bottom end of the arrow, poke a hole, and place a paper rivet through the hole. Attach the arrow to the middle of the paper plate.

Then proceed with the following questions.



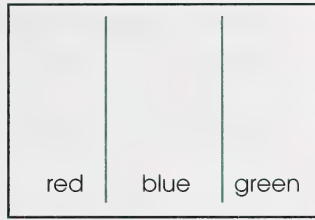
Answer these questions with the words **never**, **sometimes**, or **always**.

If you spin the arrow ten times, how often do you **predict** that it will stop on red? If necessary, explain that **predict** means to tell beforehand.

How often do you **predict** that the arrow will stop on blue?

Give the student a blank sheet of paper and a pencil. Continue with the script.

Print the words **red**, **blue**, and **green** along the bottom of this paper. Draw lines to make a **column** for each colour.



Spin the arrow on the spinner one time.

Make a check mark **above** the colour that the arrow stopped on.

Spin again.

Make a check mark **above** the colour that the arrow landed on this time.

Spin the arrow 8 more times, and mark the colour each time.

Allow the student time to complete the task, helping when necessary. Then encourage the child to refer to the chart to answer the following questions.

How many times did the arrow stop on red?

Was this number **never**, **sometimes**, or **always**?

How many times did the arrow stop on blue?

Was this number **never**, **sometimes**, or **always**?

How close were your **predictions** to the actual numbers of times?

How often did the arrow stop on **green**? (It **never** stopped on green, because this colour was not one of the **possibilities**.)



I will ask you some other questions. You say how often these things happen.

Do they happen **never**, **sometimes**, or **always**?

How often does the sun rise in the morning?  
(**always**)

How often do you have soup for lunch?  
(**sometimes**)

How often do you sleep with your eyes open?  
(**never**)

How often do you eat breakfast in the morning? (**always**, **sometimes**, or **never**)

Continue to ask **never**, **sometimes**, and **always** questions until the student appears to grasp the concept.



How often have you held an iguana?

## Applying the Concept

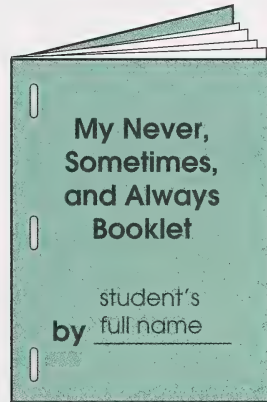
### My Never, Sometimes, and Always Booklet

Gather the following supplies:

- one sheet of construction paper
- two sheets of blank paper
- stapler
- pencil crayons

**Step 1:** Fold the construction paper and the blank papers in half. Place the blank papers between the folds of the construction paper, which will be the front and back covers. Staple along the fold to create a booklet.

**Step 2:** Help the child print the title **My Never, Sometimes, and Always Booklet** on the front cover. Add the word **by** and the student's full name.



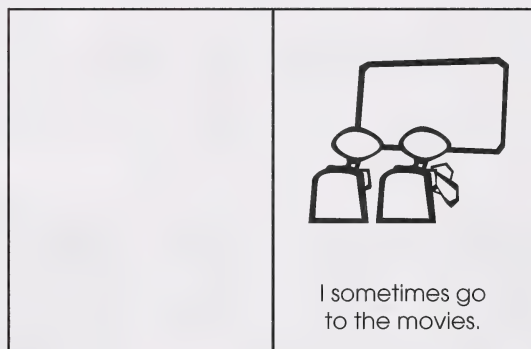
**Step 3:** On the first inside page, have your student draw a picture of an event that never happens and then print a sentence about the illustration.

See the example that follows.





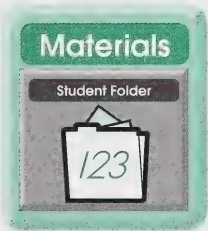
**Step 4:** On the next page, have your student draw a picture of an event that happens sometimes. Have the child print a sentence about the picture.



**Step 5:** On the last inside page, ask the student to draw a picture of an event that always happens and to write a sentence about that illustration.

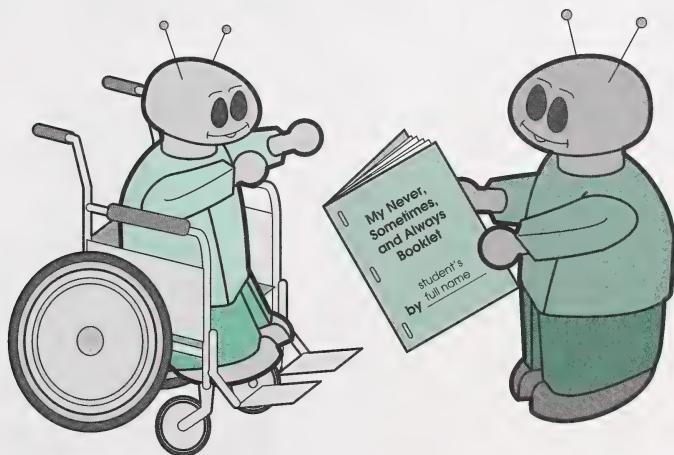


**Step 6:** On the back of the booklet, have your student print the abbreviated form of the module and day numbers, M8D1.



**Step 7:** Have your student share the booklet with family and friends. Then place the booklet in the Student Folder.

Consider offering the student some form of praise for work completed with care and effort.







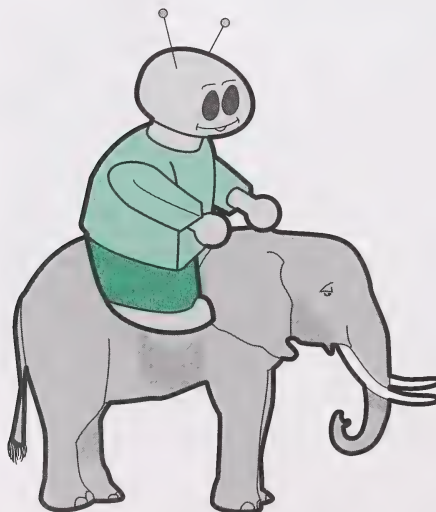
How often do you visit other family members?

## Enrichment (optional)

### 1. Guess How Often

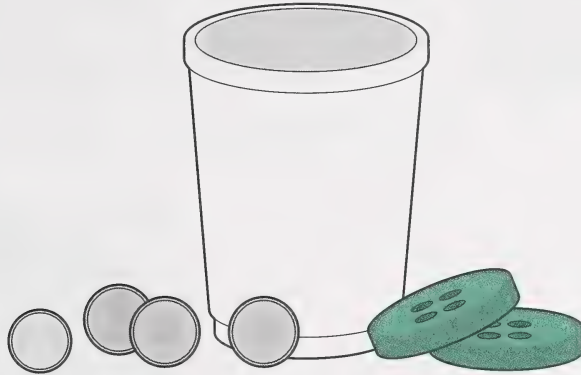
Take turns asking one another questions, similar to the following, that require answers with one of the terms *never*, *sometimes*, or *always*.

- How often does the sun set in the evening?
- How often are you sick?
- How often do you go to the beach?
- How often do you ride on an elephant?



## 2. Object Toss

Gather small objects with two or three sides to fall on, for example, paper cups, coins, or buttons.



**Step 1:** Choose one object at a time, and ask your student to predict how often it will land on each side when tossed into the air. For example, if you toss the coin into the air, ask in turn how often it will land on heads, on tails, and on its side.

Encourage the child to use the terms *never*, *sometimes*, and *always* when answering.

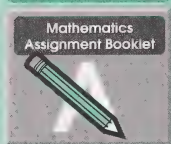
**Step 2:** Toss each object into the air several times to check the student's predictions.

Record the results on paper, using a simple check-mark **graph** similar to the following.

Coin Toss		
✓	✓	
✓	✓	
✓	✓	
✓	✓	
	✓	
heads	tails	side



## Materials



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 1.

Then complete Day 1: Learning Log. Under Student's Thoughts, help the child complete the rating scale to describe thoughts about today's mathematics learning. Then help the child print answers to the questions at the bottom of the page.



# Day 2



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- making direct comparisons of lengths, heights, and distances
- developing an understanding of linear-related vocabulary



## Vocabulary (spoken only)

compare/comparison  
shortest  
longest  
base line  
length

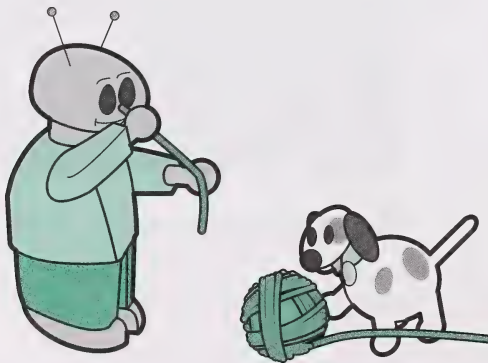
end points  
order  
estimate  
straight  
conserve





### Materials Required

- box containing required materials from the master list
- balls of yarn in four different colours
- two matching sets of cardboard strips, with each set containing ten strips cut into various lengths
- large box filled with items of various lengths, for example, shoes, a bat, kitchen utensils, crayons, and toys (optional)



## Developing the Concept

Read the following rhyme twice with your student.

---

---

### Old King Cole

---

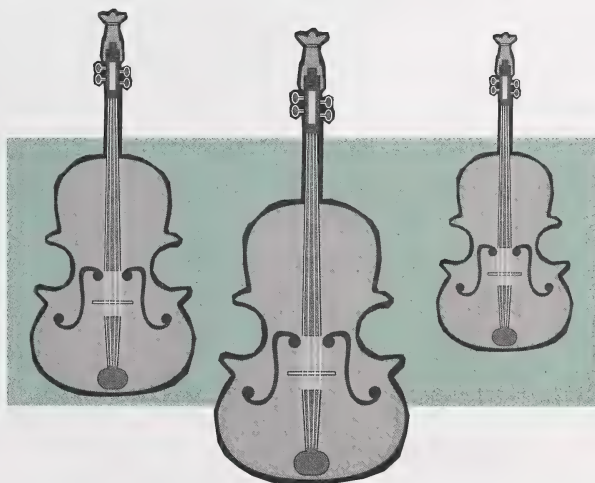
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Old King Cole was a merry old soul,  
And a merry old soul was he;  
He called for his pipe,  
And he called for his bowl,  
And he called for his fiddlers three.

Now every fiddler had a very fine fiddle,  
And a very fine fiddle had he;  
Oh, there's none so rare  
As can **compare**  
With King Cole and his fiddlers three.

---

---



Discuss the meanings of the following words from the rhyme.

**merry**

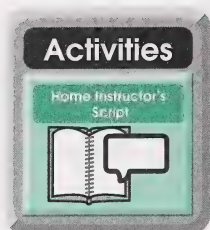
**fine**

**rare**

**compare**



Use the following script to discuss the rhyme and the illustrations that follow.



Point to Old King Cole.

What three things did he call for? (pipe, bowl, and fiddlers)

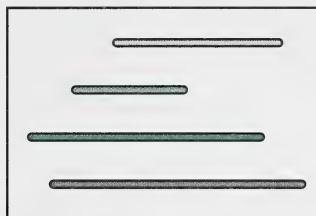
How many fiddlers are there? (3)

How many strings are on each fiddle? (4)

How many fiddle strings are there in total? (12)



Cut four different lengths and colours of yarn that will fit on a piece of loose-leaf paper. Guide your student to position the four pieces of yarn on a paper according to the following illustration. Say that the pieces of yarn will represent fiddle strings.



Ask the following questions.

Which fiddle string do you think is the **shortest**?

Label this fiddle string as the **shortest**.

Help the student use masking tape and a pen to place a label below this piece of string and each subsequent piece from **shortest** to **longest** as you continue with the questions.

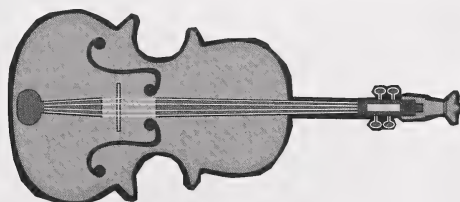
Which string is the next **shortest**?

And next?

Which fiddle string do you think is the **longest**?

Can you tell for sure? Why, or why not?

If necessary, explain that in order to be sure, the fiddle strings must be measured from a common **base line**, or starting point.





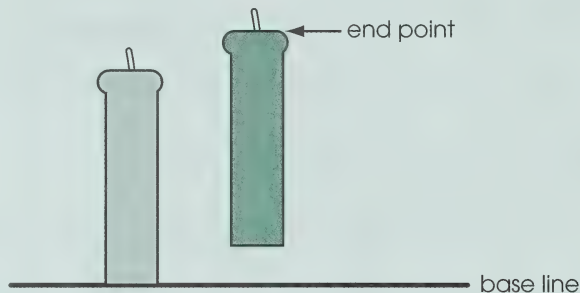
## Activities

### Teaching Tip



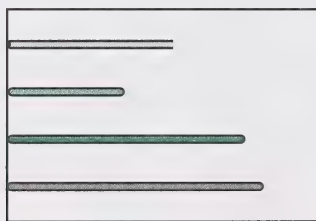
**Comparison** is a basic thinking skill that the student needs in order to organize and understand the world.

When the child is comparing measurements, encourage use of a **base line**—a common starting point from which all objects can be measured.



When two objects are positioned as the ones shown above, a young child will frequently choose the darker-coloured one as the longer object, even though both are the same **length**. If the child chooses this way, length is being defined in terms of positions of the **end points**.

Now, guide the student to place each piece of yarn at the edge of a new piece of paper according to the following illustration.



Point to the left edge of the paper, and instruct as follows.

You have placed one end of each string on a **base line**.

Placing one end of each string on the **base line** will help you measure more accurately.

Review the idea of a base line, and then have your student place the pieces of yarn in **order** on the paper from shortest to longest.



Ask the following questions.

Is the piece of yarn you chose earlier still the **shortest**?

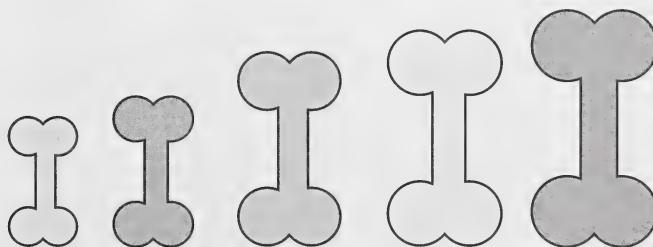
What about the **longest** one?

Are the fiddle strings between the **shortest** and the **longest** still the same?

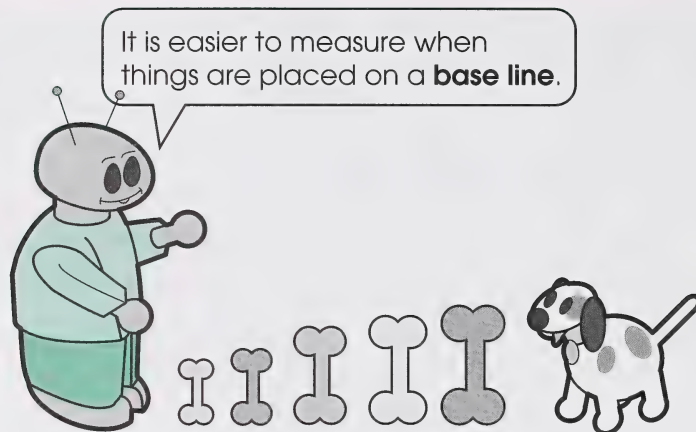
When you predicted the **shortest** to the **longest** pieces of string, you estimated.

Remember that the word **estimate** means to make a prediction based on knowledge and experience of a situation.

Discuss how it is easier to decide which piece of string is shortest and which one is longest when all the strings are placed on the same base line.







Curl up one of the fiddle strings, and then ask your student whether it is shorter or longer than when it was **straight**.

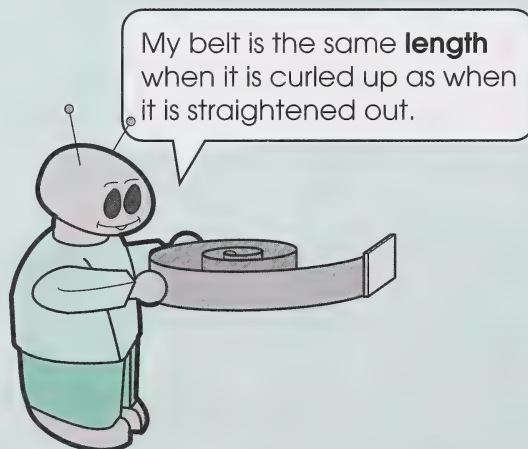
## Activities

Teaching Tip:



Length is one of the most easily perceived attributes of objects. Your student, more than likely, has some concept of length and is aware of vocabulary associated with it.

Some students may, however, exhibit misconceptions about length. For example, a child might say that a belt is shorter when curled up than when it is straight. Misconceptions of this type will clear up as the child develops and takes meaningful measurements.



## Applying the Concept

### 1. Longer, Shorter, and the Same Length

Set out the collection of cardboard strips. Give the student one that is the second longest in the collection. Use the following script.

Find another strip that is longer than this strip.

Can you tell that the second strip is longer by looking at it? (yes)

How would you place the strips to prove that one is longer than the other? (Place one end of each strip on a **base line**.)

Find another strip that is the same **length** as the first strip.

Show how you can prove that these two strips have the same **length**. (The student should demonstrate by placing the strips on a base line.)

Give the student one of the strips that is the second shortest in the collection.

Find another strip that is shorter than this strip.

Can you tell that the second one is shorter by looking at it? (yes)

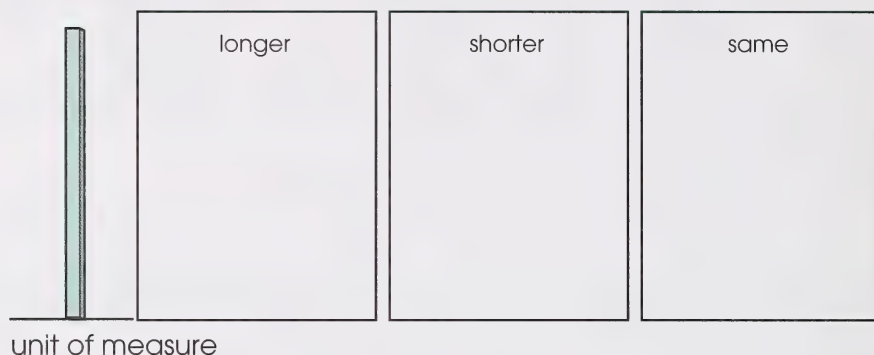
How would you place the strips to prove that one is shorter than the other? (Use a base line.)

Find another strip that is the same **length** as your short strip.

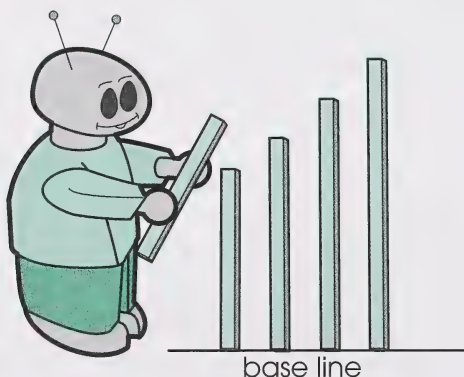


Show how you know that these two strips have the same **length**. (The student should use the base line again.)

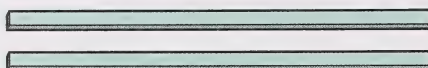
Now, choose any strip, and sort all the others into three groups—longer, shorter, and the same.



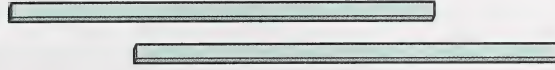
Choose any five strips, and place them in order from **longest** to **shortest** and then from **shortest** to **longest**.



Give the student one strip, and ask the child to find another strip that is the same length. Have your student show that they are the same length by placing them side by side.



Then move one strip forward. Ask the child if this strip is now longer than, shorter than, or the same length as the other strip.



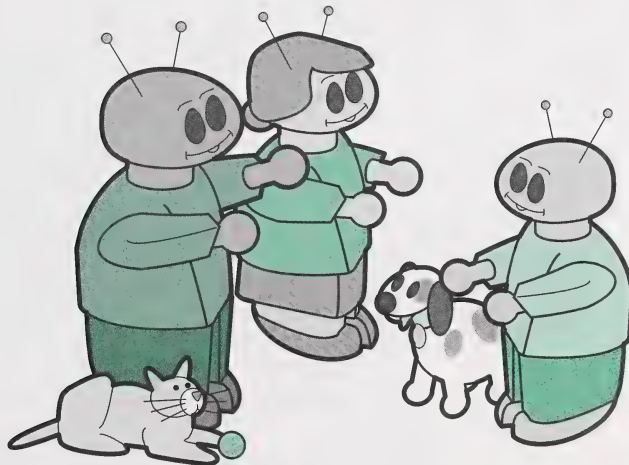
If your student believes that the length of an object changes when its position or form is altered, do not conclude that the child is not ready to learn basic measurement concepts and skills.

Maturation and experience, particularly discussing measurements with others, will develop the child's ability to **conserve** the length of objects no matter what position or form they are in.

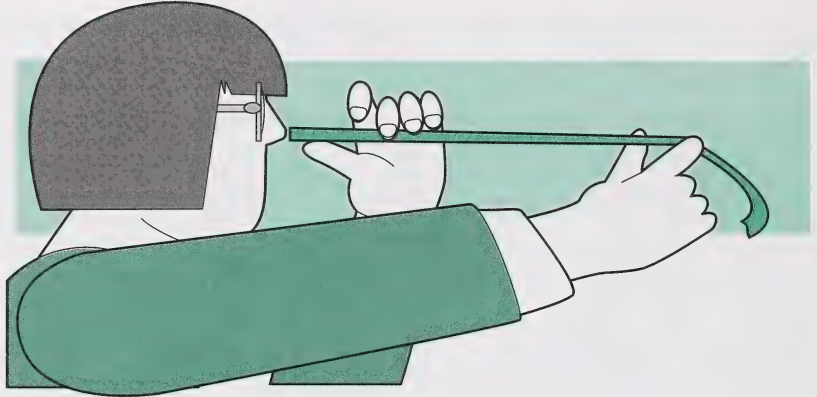
## 2. Family-and-Friend Stretches

For this activity, collect yarn or ribbon, some large chart paper, and a pencil or pencil crayons.

**Step 1:** Gather together family members or friends.



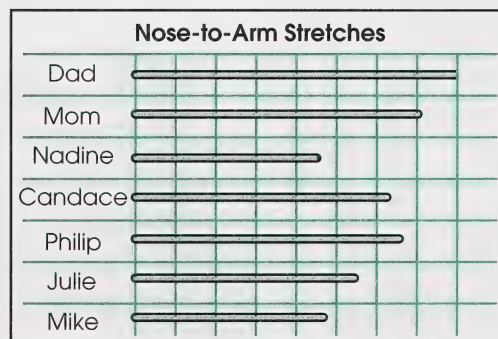
**Step 2:** Have each person face straight ahead and stretch yarn or ribbon from the tip of the nose to the tip of an outstretched arm.



**Step 3:** Cut the yarn or ribbon to the length of the stretch.

**Step 4:** Compare and talk about the length of each piece. For example, whose piece of yarn shows the longest stretch, the shortest, shorter than yours, and the same length?

**Step 5:** Make a graph using the yarn pieces to show the nose-to-arm stretches for your group.



For fun, you could graph other stretches as well, such as shoulder to the tip of the fingers.

**Step 6:** On the back of each graph, print the child's full name and the abbreviated form of the module and day numbers, M8D2.



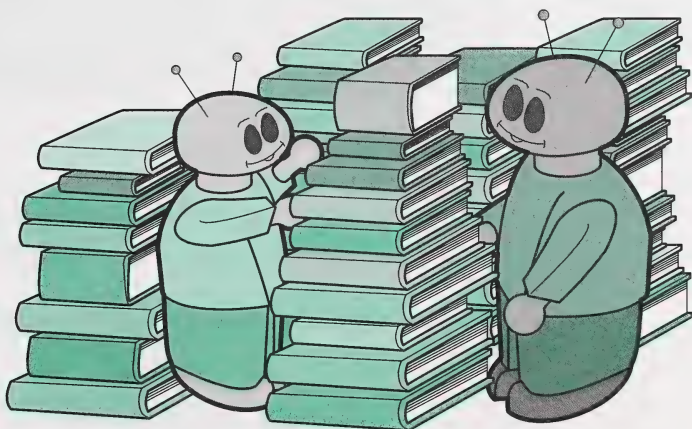


Your student is only required to submit one graph. Choose one graph to place in the Student Folder. You could display others in your work area.

## Enrichment (optional)

### 1. Books About Length and Size

- *Big Sarah's Little Boots* by Paulette Bourgeois
- *Jim and the Beanstalk* by Raymond Briggs
- *Katy and the Big Snow* by Virginia Lee Burton
- *Papa, Please Get the Moon For Me* by Eric Carle
- *You'll Soon Grow Into Them, Titch* by Pat Hutchins
- *Much Bigger Than Martin* by Steven Kellogg
- *The Biggest, Smallest, Fastest, Tallest, Things You've Ever Heard Of* by Robert Lopshire
- *David's Father* by Robert Munsch
- *The Boy in the Drawer* by Robert Munsch
- *How Big Is a Foot?* by Rolf Myller



### 2. My Family from Shortest to Tallest

Have your student arrange family members from shortest to tallest. Encourage the student to talk about the results, using comparative language similar to the following.

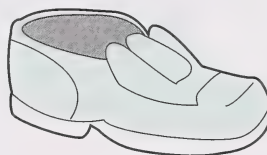
- Who is taller, Mom or Dad?
- Is Steven shorter than Shannon?
- Who is the shortest in the family?

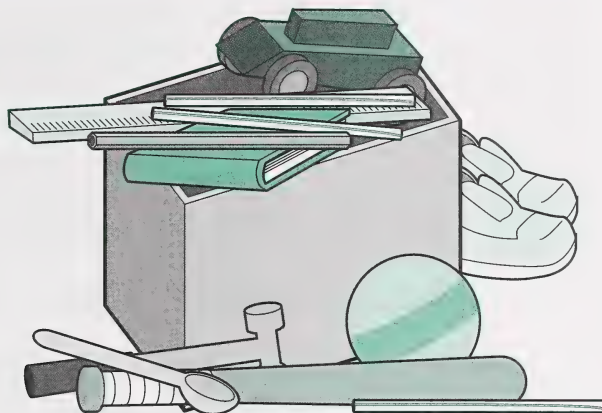


### 3. Measure It

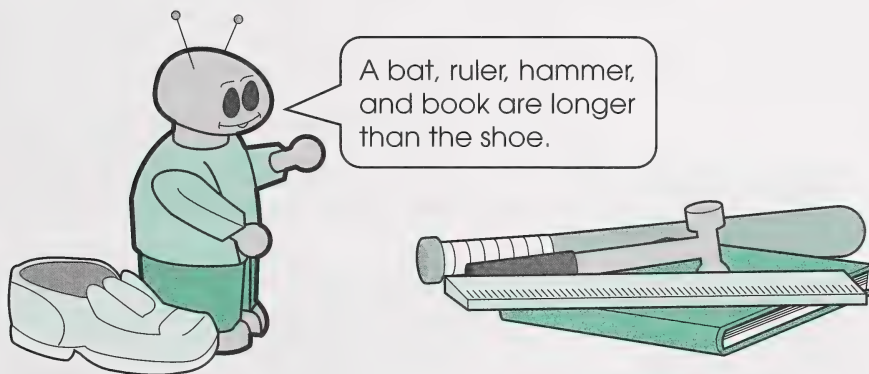
Gather chart paper and a box filled with items of various lengths, such as those listed in Materials Required.

**Step 1:** Ask your student to choose one item from the box.

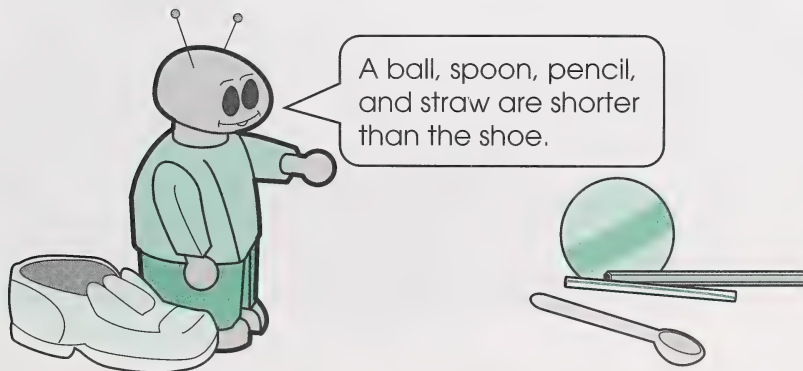




**Step 2:** Have the child look in the box to find items that are longer than the chosen one and explain the findings.

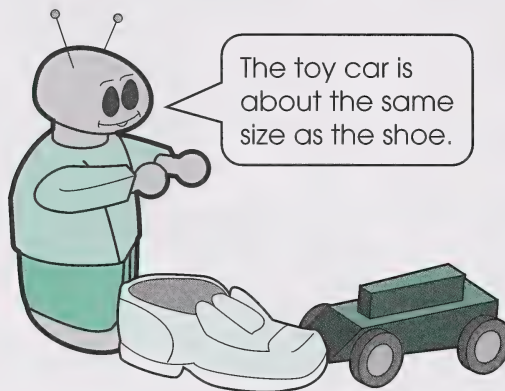


**Step 3:** Have the student look this time for items that are shorter than the chosen object and again tell what is found.

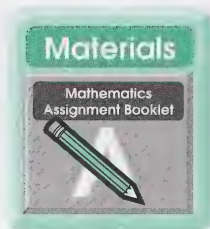




**Step 4:** Have the student look in the box for items that are approximately the same length as the chosen object and continue to tell what is found.

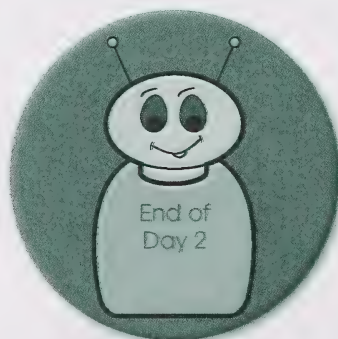


**Step 5:** Take turns choosing items and finding other objects that are longer, shorter, and about the same length.



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 2.

Then complete Day 2: Learning Log. Under Student's Thoughts, have the student print a sentence or two about this day's mathematics learning. For example, was it easy or hard to order the fiddle strings from shortest to longest?



# Day 3



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure length, height, and distance
- using nonstandard units to estimate, measure, record, and compare by length, height, and distance
- comparing data using appropriate language, including quantitative terms such as *how many more*



## Vocabulary (spoken only)

long	taller	fathom	cubit
thin	wide	digit	pace
shorter	small/smaller	palm	estimate
longer	big/bigger	span	

## Materials Required



- box containing required materials from the master list
- collection of long, thin objects (optional)
- *How Big Is a Foot?* by Rolf Myller (optional)
- roll of adding-machine tape or masking tape (optional)
- uniform-sized sticks, such as wooden craft sticks (optional)

## Developing the Concept

Today, the student will use nonstandard units of measurement to select, estimate, and measure.

### Activities

#### Teaching Tip

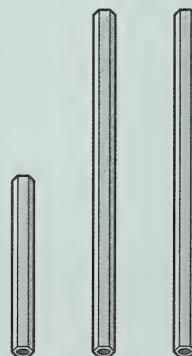


If your student experiences difficulty estimating and measuring with nonstandard units, spend time practising as follows.

- Use a collection of **long, thin** objects such as rods, spaghetti, pencils, or crayons. Hold up two long objects and one short object.

Ask the child to tell which one is different, using the words **shorter**, **longer**, and **taller**. Repeat with other objects that are the same, except for length.

- Hold up a long pencil and a short crayon.



Continued ...



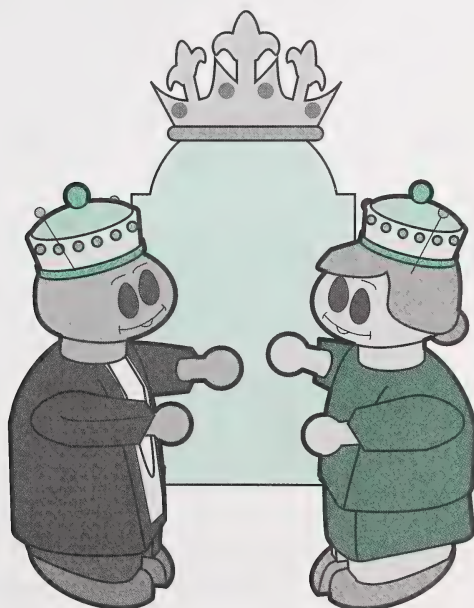


Ask how these two objects are different. Expect answers that describe attributes such as colour and type of object.

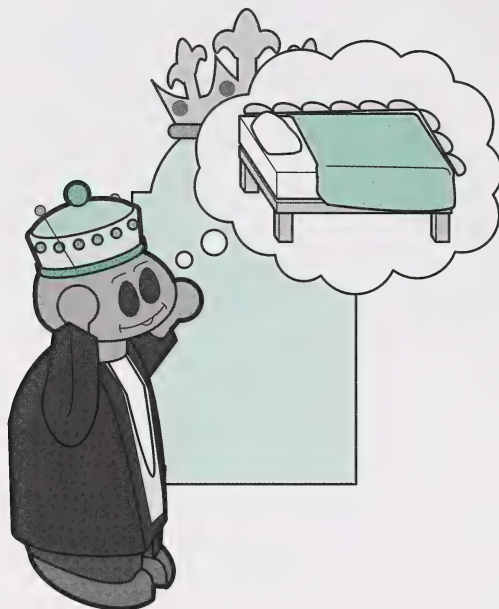
If the child doesn't mention that the crayon is shorter or the pencil is longer, ask "Which one is longer?" and "Which one is shorter?"

The following activity is based on the book *How Big Is a Foot?* by Rolf Myller. You do not need this book for this activity, but it is one you could look for on your next visit to the library.

Read the book aloud, or tell your student that this book is about a king who didn't know what to get his wife, the queen, for her birthday. She already had everything. At last, the king decided to have a bed made for her. This was an excellent idea, because beds had not been invented yet.

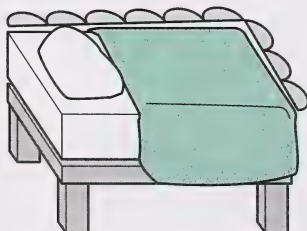


The king ordered the bed to be made three feet **wide** and six feet long. Unfortunately, when the bed was presented to the queen, it was too **small**.

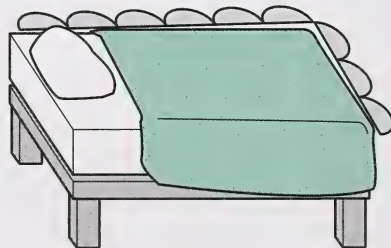


The carpenter was banished to the dungeon for his mistake. While in the dungeon, the carpenter had a lot of time to think about his mistake. Eventually, he figured out what he had done wrong.

The carpenter told the king about his error, and he was granted permission to make a new bed that was just right for the queen.



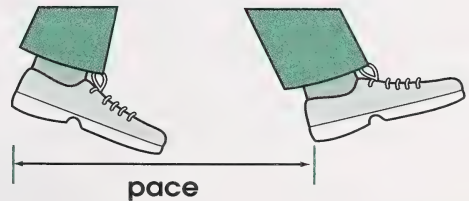
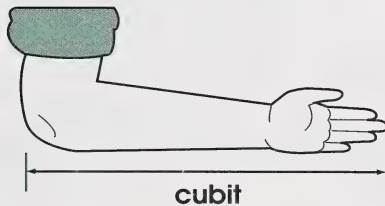
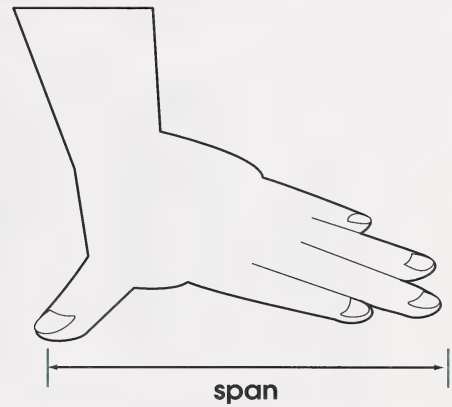
too small



just right

Through discussion, guide your student to discover that the king's foot was **bigger** than the carpenter's foot, and that is why the first bed was too small for the queen.

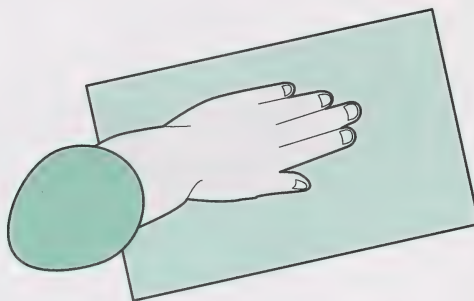
Go on to explain that long before rulers, people measured things using hands, feet, and other body parts.



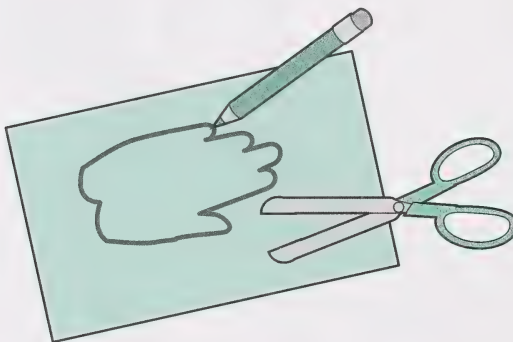


## Applying the Concept

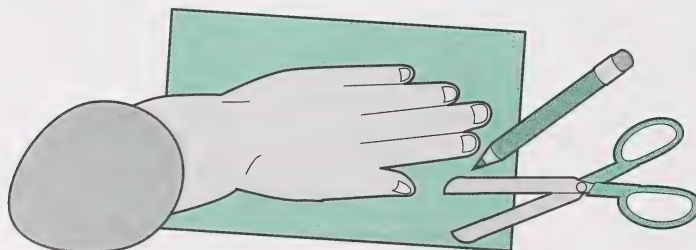
Ask the student to place one hand on a piece of construction paper, with the fingers together.



Have the child trace around the hand and then cut out the hand print.



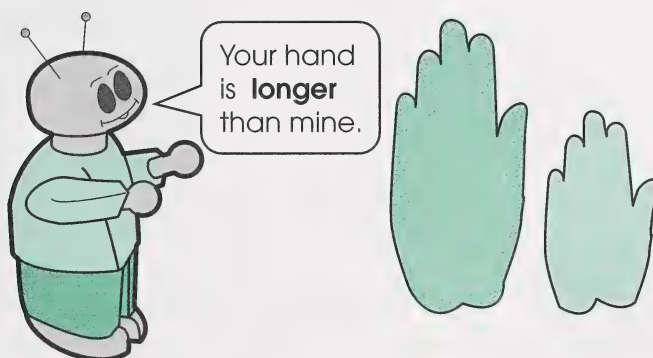
Repeat the procedure with one of your hands.



Also make footprints with one of the child's feet and one of yours.



You now have “hand and foot measures.” Challenge the student to find longer and shorter hands and feet than those already made.



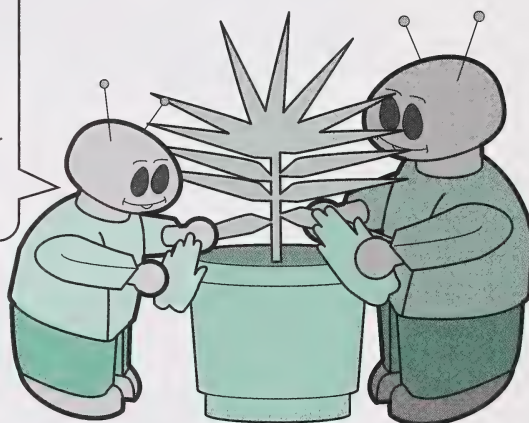
Next, use your individual “hand measures” to each measure five things in the room. Before you measure, both you and your student can **estimate** each measurement in your own hand measure. Then measure the distance around, the length, or the height of each item. If necessary, guide the student to round up partial units to the nearest half or full hand.

Make separate charts of your results. Then talk about the difference between each estimate and actual count.

Object	My Estimate	My Hands
Planter	9 hands	10 hands
Door	40 hands	33 hands
Chair	16 hands	12 hands
Desk	33 hands	31 hands
Window	27 hands	34 hands



It took 10 of my hand measures to go around the planter. I wonder how many of your hand measures it will take.



## Materials

Student Folder

123

Label the back of the student's chart with the child's full name and the abbreviated form of the module and day numbers, M8D3. Then place the chart in the Student Folder.

Student's full name

M8D3

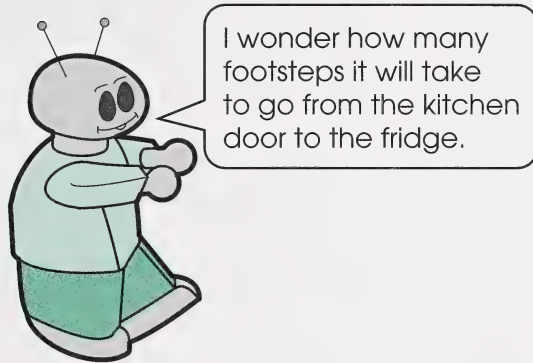




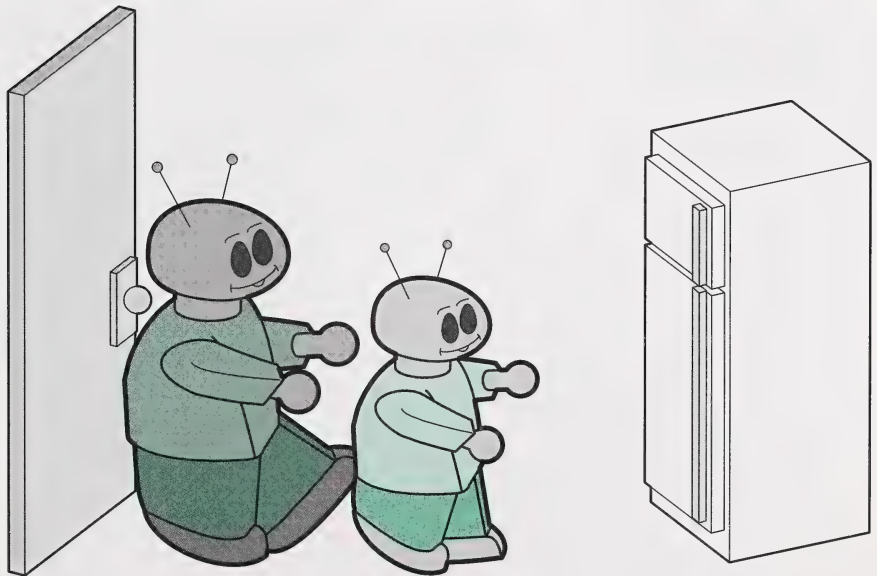
## Enrichment (optional)

### 1. Measure the Distance

Estimate how many heel-to-toe footsteps it would take you and your student to go from one location to another.



Record your estimates. Then check how close your estimates were to the actual number of footsteps.



Record each actual measurement beside its matching estimate. Compare the estimates with the actual measurements.

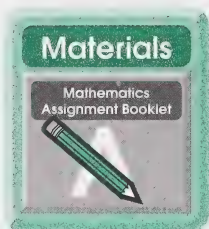
Estimate and measure other distances in heel-to-toe footsteps and other nonstandard units. Continue until your student has practised a variety of linear measurements or until signs of fatigue are evident.

### 2. Measure the Strips

Give the student a roll of adding-machine tape or masking tape and some uniform-sized sticks to use as a nonstandard measure.

Take turns doing the following:

- cut a length of tape
- estimate the length in nonstandard units
- measure end-to-end with the nonstandard unit
- record the estimate and actual measurement of the tape
- compare the estimate with the actual measurement



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 3.



# Day 4



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure length, height, and distance
- using nonstandard units to estimate, measure, record, compare, and order by length, height, and distance
- developing an understanding of linear-related vocabulary





### Vocabulary (spoken only)

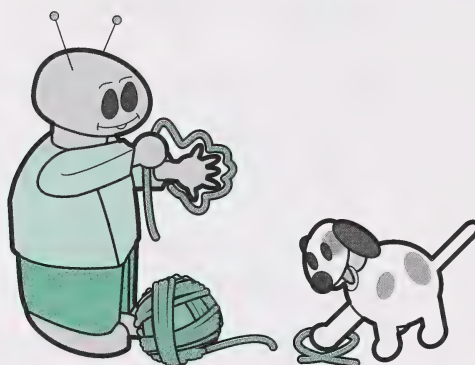
actual  
attribute

size  
approximate

around  
stride/strides

### Materials Required

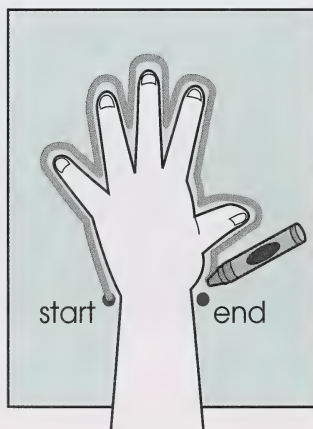
- box containing required materials from the master list
- yarn or string
- roll of adding-machine tape or masking tape (optional)



### Developing the Concept

#### How Far Around Our Hands?

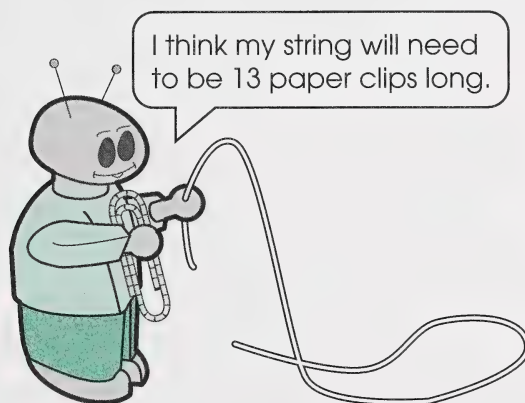
Have your student trace around one hand on a piece of paper. Be sure the fingers are spread apart for this outline.



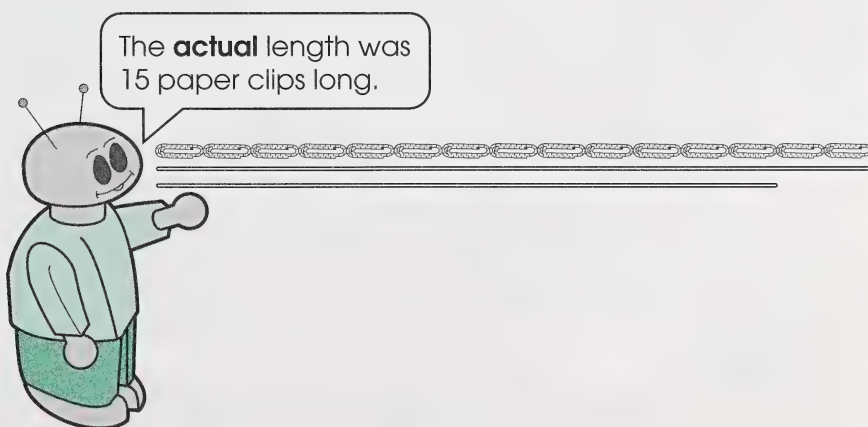
Hold up the child's tracing, and challenge your student to suggest ways to measure the length of the outline from start to end.

Discuss and try the student's ideas. If the student does not mention measuring the outline with a string or yarn, suggest this idea.

Encourage your student to predict the length of string that will be needed to outline the hand shape. Use a nonstandard unit of measurement such as paper clips or beans. Record the estimate.



Then ask the child to find the **actual** length of string required to outline the hand shape. Use the same nonstandard unit to measure, and compare the actual length to the estimate.



## Activities

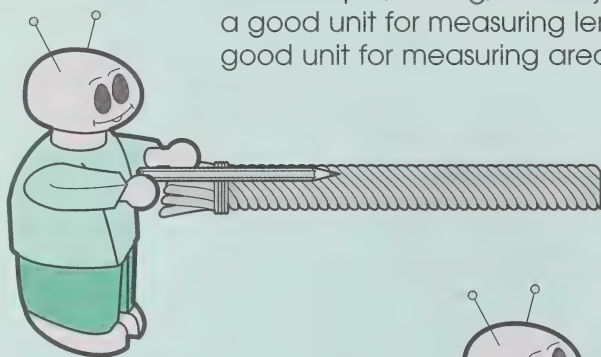
### Teaching Tip



Students are encouraged to be familiar with a variety of nonstandard units of measurement and to choose an appropriate unit for each measuring situation. An appropriate unit has the following characteristics:

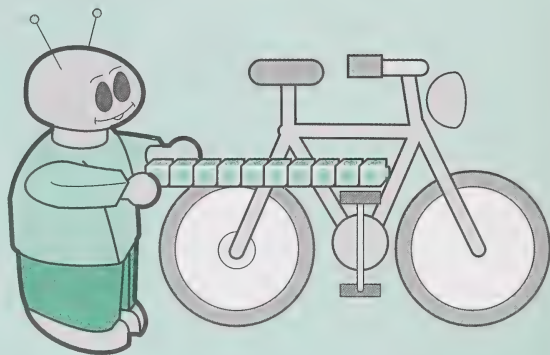
- the same **attribute** as the object being measured

For example, a long, thin object such as a pencil would be a good unit for measuring length, but it would not be a good unit for measuring area.

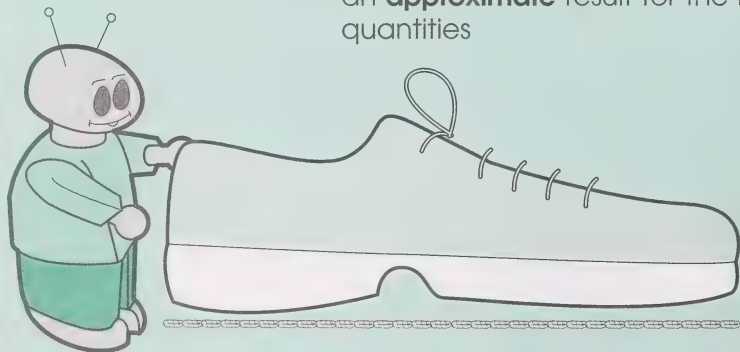


- an appropriate **size** in comparison to the object being measured

The unit should be smaller than the object but large enough that your student is not required to count higher than 100.



- an **approximate** result for the measurement of continuous quantities

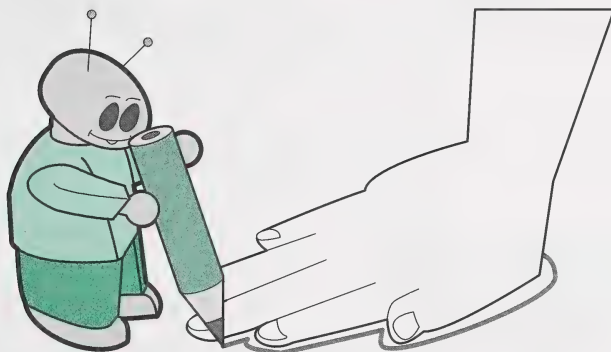


Your student will discover that when a length is measured in a unit such as paper clips, the number of multiple units might not exactly match the object. For example, the length of a shoe could be closer to 30 paper clips than 29.

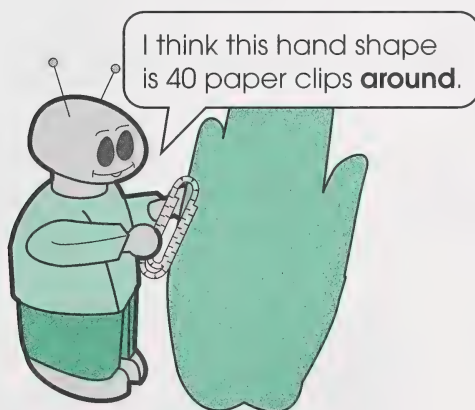


## Applying the Concept

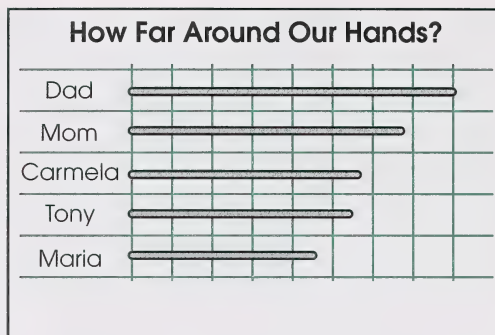
Have the student trace around the hands of three or four other people of various ages and sizes. Be sure that all the fingers are close together for these outlines. Then ask the child to estimate the length of string needed to outline each hand size.



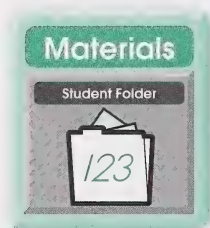
Use the same nonstandard units, for example, paper clips, that were used in Developing the Concept. Make the estimates, and then do the actual measurements.



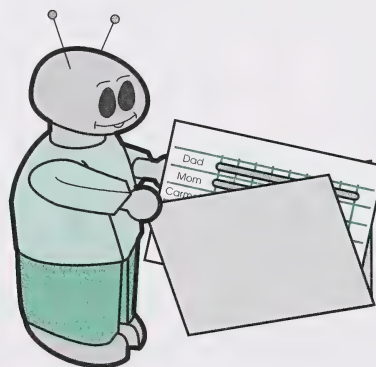
On a large piece of construction paper, label by name and order the pieces of string from shortest to longest. Have your student include a personal outline measurement as well. Title the graph **How Far Around Our Hands?**



Use glue or tape to attach the strings in the correct order on the construction paper.



On the back of this chart, have your student's full name printed. Add the abbreviated form of the module and day numbers, M8D4. Place the chart in the Student Folder.



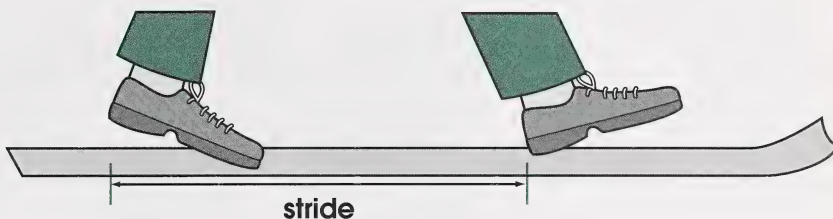
## Enrichment (optional)

### 1. Striding Right Along

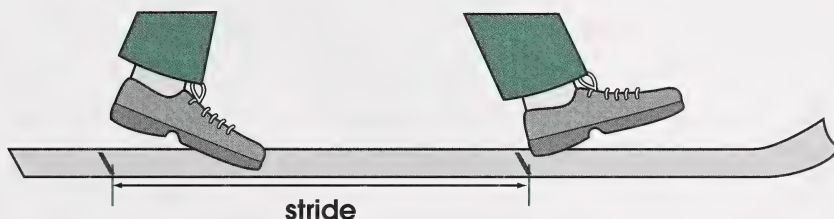
Work with a partner for this activity.

You will need long strips of paper or an adding-machine roll, blank paper, and a pencil or crayons.

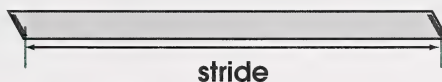
**Step 1:** Roll the paper out on the floor. Have the student take a normal walking step and hold that position.



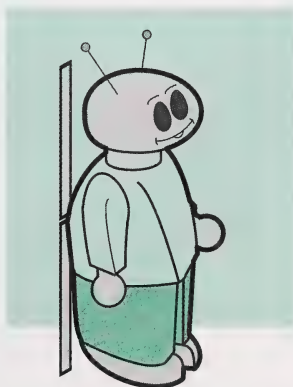
**Step 2:** Put a mark where the heel of each foot lands.



**Step 3:** Cut the strip at the two marks. The distance between the two markings will be called the student's **stride**.

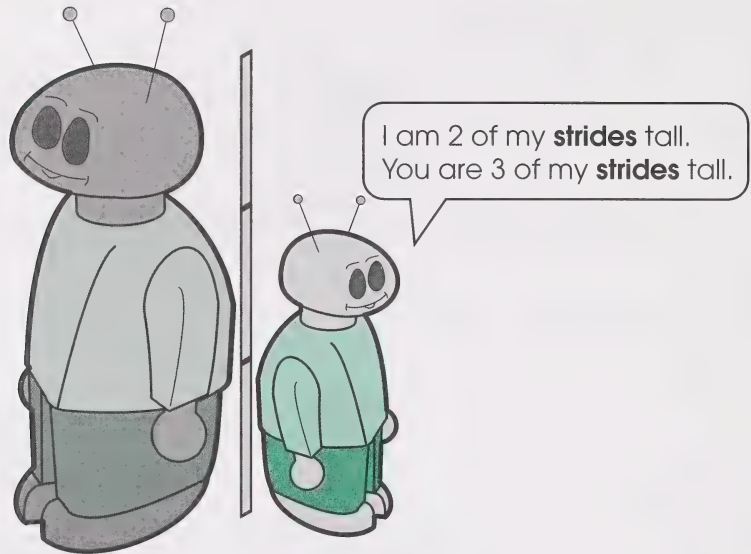


**Step 4:** Have the child estimate and then measure the heights of several people, using the stride as the unit of measurement.



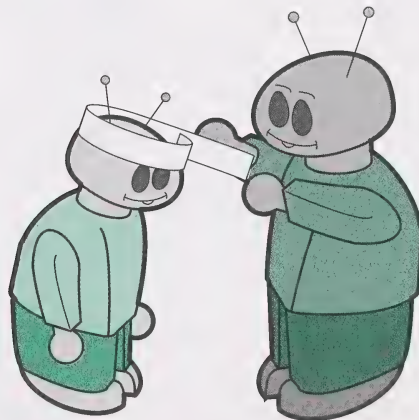


**Step 5:** Compare the estimates and the results.

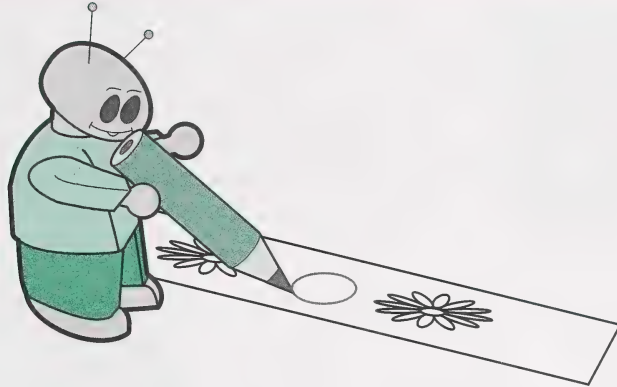


### 2. Around My Headband

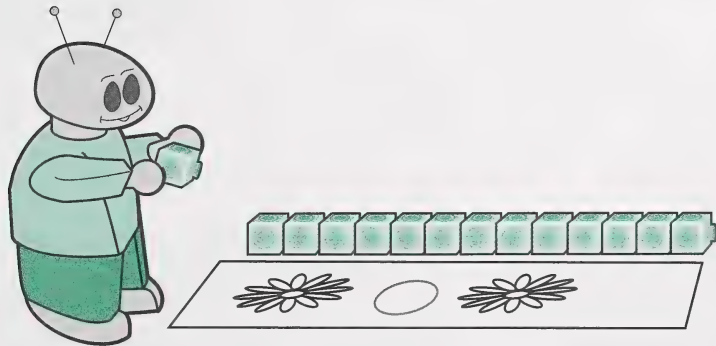
**Step 1:** Use a strip of light cardboard or adding-machine paper to measure the distance around the child's head.



**Step 2:** Cut the headband according to the size of your student's head. Encourage the child to decorate the headband with markers, crayons, or stickers.



**Step 3:** Have the student choose five or six different nonstandard units to estimate and measure the length of the headband.



Graph the results by colouring in the numbers of units.

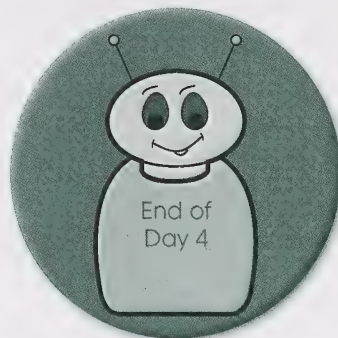
Around My Headband																															
Unit of Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
pencil																															
eraser																															
paper clip																															
my big toe																															
block																															

### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 4.





# Day 5



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure length, height, and distance
- using nonstandard units to estimate measure, record, compare, and order by length, height, and distance
- developing an understanding of linear-related vocabulary



Shorter and taller

### Vocabulary (spoken only)

near	tall/taller/tallest	about the same
far	short/shorter/shortest	order
far away	as tall as	digits
farther		

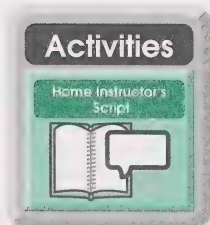
### Materials Required

- box containing required materials from the master list
- Scavenger Hunt clues and matching items (optional)
- *You'll Soon Grow Into Them, Titch* by Pat Hutchins (optional)



### Developing the Concept

Begin with the following activities in order to introduce related vocabulary and further explore basic linear concepts.



Name something in the room that is **near** you.

Name something in the room that is **far** from you.

Tell me about something that is **near** the door.

Touch something that is **far away** from the door.

Is it **farther** from you to the door or from me to the door?

How do you know? Guide the child to suggest using a nonstandard unit of measurement to estimate and check.

Name someone who is **tall**.

Name someone who is **short**.

Who is taller, \_\_\_\_\_ or \_\_\_\_\_? Add names of people that the student knows.

How do you know? Guide the child to suggest using a nonstandard unit of measurement to estimate and check.

Name someone who is **taller** than \_\_\_\_\_. Add the name of someone with whom the student is familiar.

Name someone who is **shorter** than \_\_\_\_\_. Add another familiar name, and continue to do this in the following script.

Think of someone who is **as tall as** \_\_\_\_\_.  
\_\_\_\_\_ and \_\_\_\_\_ are **about the same** height.

If one of them stood on a chair, would they still be the same height? (no)

How do you know? (The one on the chair would be taller.)

Gather together a group of people, and talk about who is **taller**, **shorter**, and **about the same** size. Then have your student **order** the group from **shortest** to **tallest**.



## Applying the Concept

### Let's Talk About Heights Booklet

Gather the following supplies:

- one sheet of construction paper
- two sheets of blank loose-leaf paper
- pencil and pencil crayons
- stapler

**Step 1:** Fold the sheet of construction paper in half to make the front and back covers of the booklet. In between, fold two sheets of blank loose-leaf paper to make the inside pages.

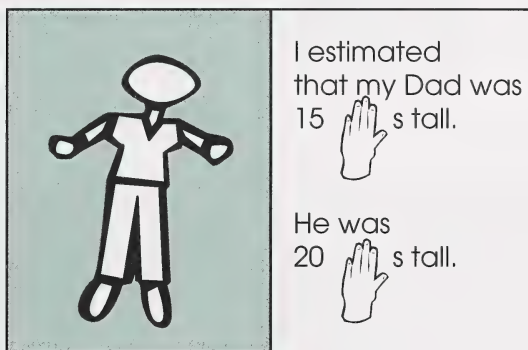
Staple the pages together along the fold.

**Step 2:** On the front cover of the booklet, help the child print the title **Let's Talk About Heights**. Add the word **by** and the student's full name.

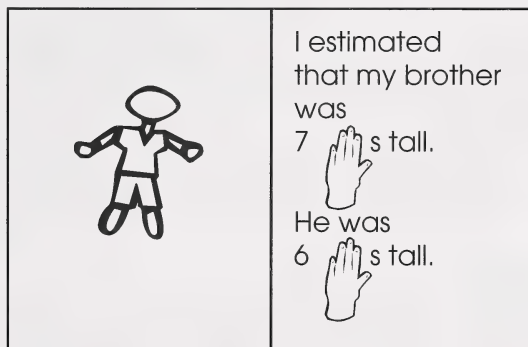


**Step 3:** On the first inside page of the booklet, have the child draw and colour a picture of the tallest member of the family.

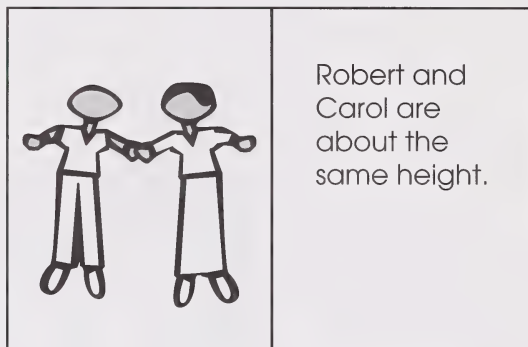
Next, have the student choose a nonstandard unit of measurement to estimate the height of the person. Then do the actual measurement. On the opposite page, help the child print one or two sentences about the estimate and the actual measurement.



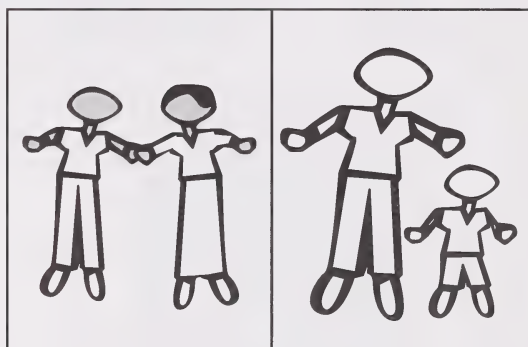
**Step 4:** On the second set of inside pages, have the student draw a picture of the shortest person in the family. Again, help the child print a sentence or two about the estimate and the actual measurement.



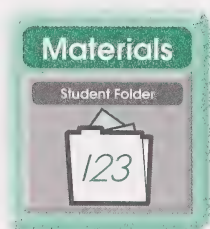
**Step 5:** On the third set of inside pages, have the student draw a picture of two acquaintances that are about the same height. Include a sentence about these two people.



**Step 6:** On the last set of inside pages, draw a picture of the tallest, shortest, and same-sized people standing together.

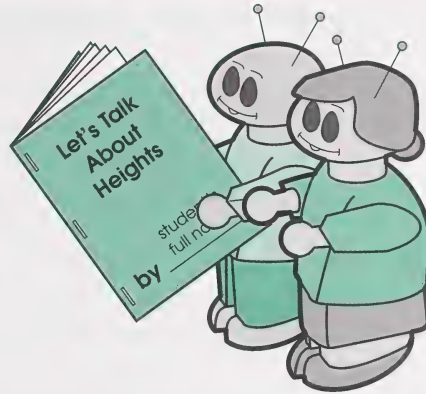


**Step 7:** Ask your student to print the abbreviated form of the module and day numbers, M8D5, on the back of the booklet.



**Step 8:** Encourage the student to read the booklet to family and friends. When it is not being shared with others, place the booklet in the Student Folder.





Taller and shorter

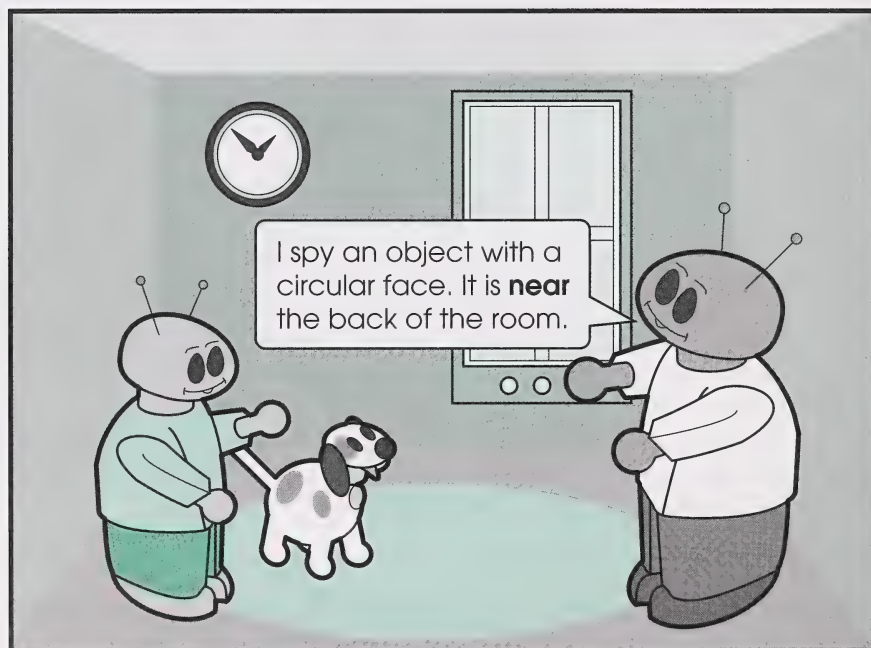
## Enrichment (optional)

### 1. I Spy

Use objects from the room you are in to take turns giving “I Spy” clues. For example, you could say, “I spy something that is taller than the stove.”

Encourage the student to respond with language that uses comparative measurements, such as shorter, taller, or longer. For example, “The fridge is taller than the stove.”

If you think that your student is ready, you could introduce other measurement comparisons, such as, “I spy something that is lighter than this block,” or “I spy something that holds more than this can.”



## 2. Scavenger Hunt

Give your student ten clues, one at a time. Have the child search for items that are about the same length, height, or distance around. Sample clues follow:

- Find an item that is 15 paper clips long.
- Find an item that is 30 pennies in length.
- Name an item that is 40 hand measures in height.
- Find an item that is 10 nickels around.
- Name an item that is 100 pennies around.
- Tell me about something that is 50 pencils in length.
- Find an item that is 18 erasers high.
- Tell me about an item that is 80 dimes around.
- Name a distance that is 50 heel-to-toe footsteps in length.
- Name an item that is 55 **digits** (index fingers) wide.



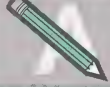
## 3. Titch by Pat Hutchins

If it is available, read the book *You'll Soon Grow Into Them, Titch*. This is a story about a little boy. His sister is a bit bigger, and his brother is a lot bigger. Everything that the children in Titch's family have is proportional to their size. Titch's tiny seed, however, grows into something big.

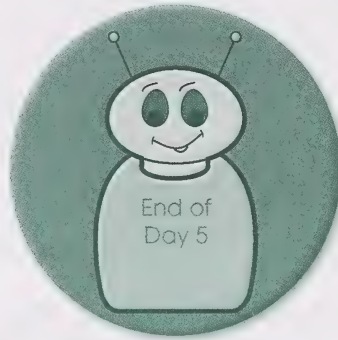


### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 5.



# Day 6



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure length, height, and distance
- using nonstandard units to estimate, measure, record, compare, and order by length, height, and distance
- comparing collected data using appropriate language, including quantitative terms such as *how many more*





A curved road

## Vocabulary (spoken only)

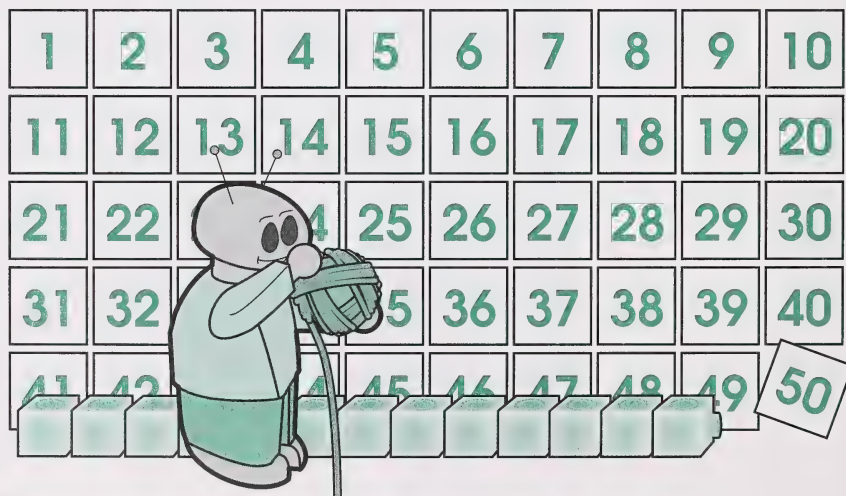
edge

curves

curved line

## Materials Required

- box containing required materials from the master list
- 0 to 50 number cards, previously used in Module 7, Day 8
- 50 jelly beans or similar nonstandard units of measurement
- ball of yarn
- computer programs (optional)



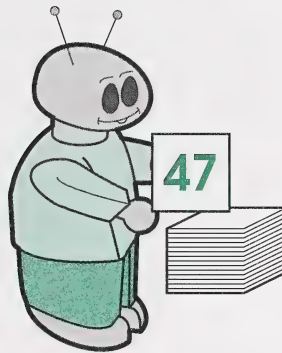


## Developing the Concept

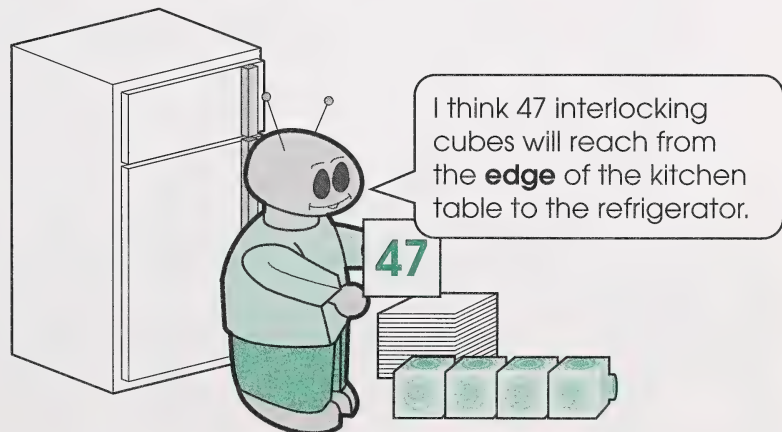
### Estimate and Actual Reach

Today, your student will review and explore length, height, and distance.

Shuffle the 0 to 50 number cards. Take turns turning over the top card.

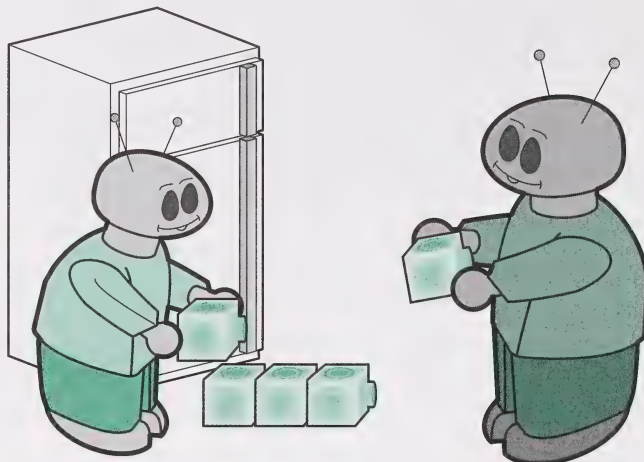


Decide on the nonstandard unit of measurement you will use, such as interlocking cubes. The person who chooses the card can look at the number and estimate the length, height, or distance a train with that number of cubes will reach. For example, your student might estimate that a train of that many units would reach from the **edge** of the kitchen table to the refrigerator.



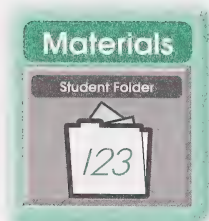
Monitor one another as you check your estimates. Occasionally, make an error to check the child's understanding of number concepts to 50 and linear measurement.

Guide your student to place the train of cubes or other units in a straight line and, if possible, make colour groupings of ten for ease of counting.

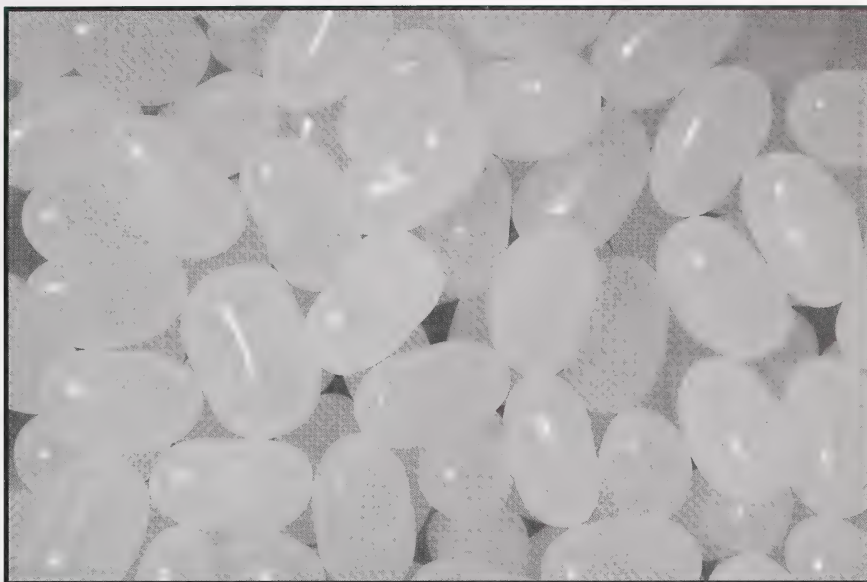


Create a chart to show estimates and actual reaches for five numbers.

Number Card	My Estimate	Actual Reach
47	edge of table to fridge	went three cubes up the side of the fridge



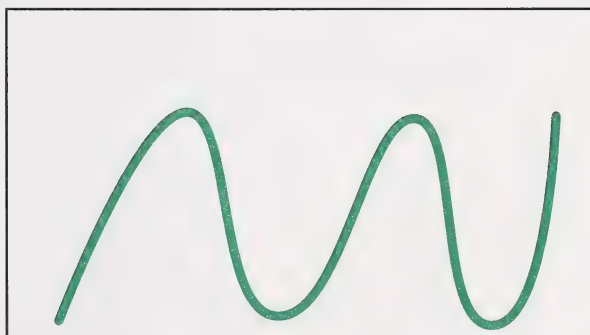
On the back of the chart, have the student's full name printed. Add the abbreviated form of the module and day numbers, M8D6. Place the chart in the Student Folder.



## Applying the Concept

### Estimating and Measuring Curves

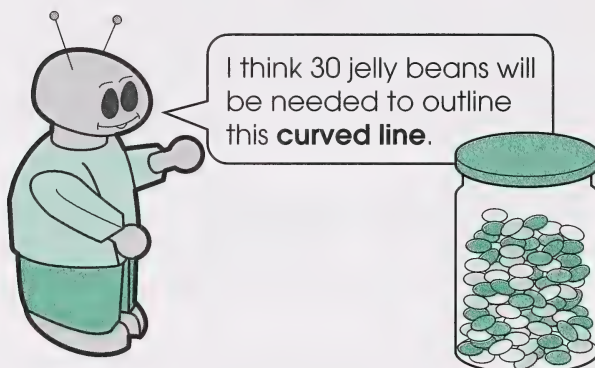
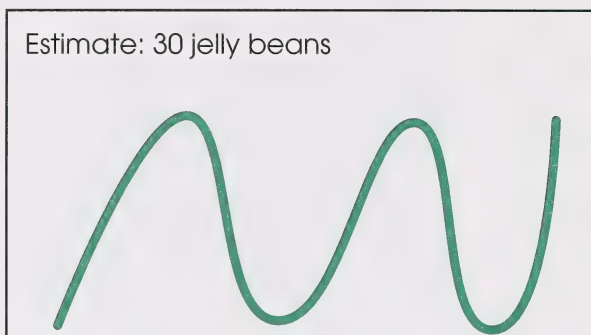
On a piece of paper, have your student draw a **curved line** similar to the one that follows.



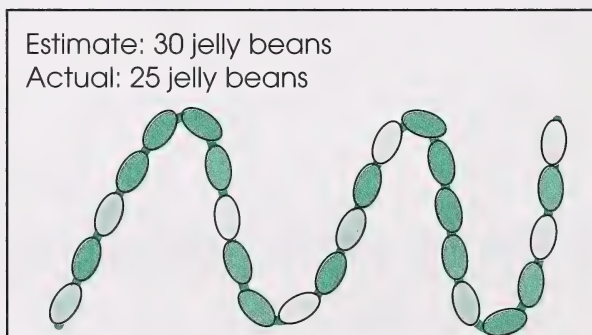
Ask the child to choose a nonstandard unit and then estimate how many of that unit would be needed to make the length of the curved line. Your student could use such small items as bread tags, jelly beans, or interlocking cubes.



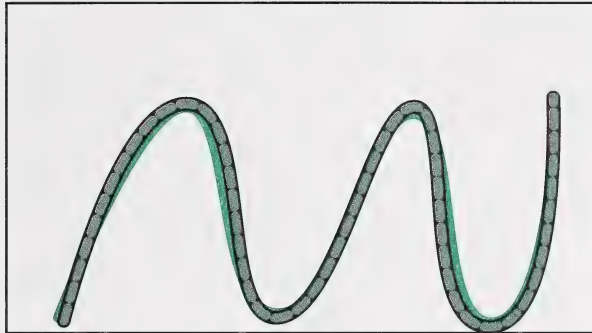
Record the estimate at the top of the page.



Have your student check the estimate by placing the chosen nonstandard unit of measurement along the outline of the curved line. Record the actual measurement. Have the student compare the estimate to the actual amount.



Next, ask your student to remove the measuring units and outline the curved line with a piece of yarn, cut to size. Then straighten the yarn.



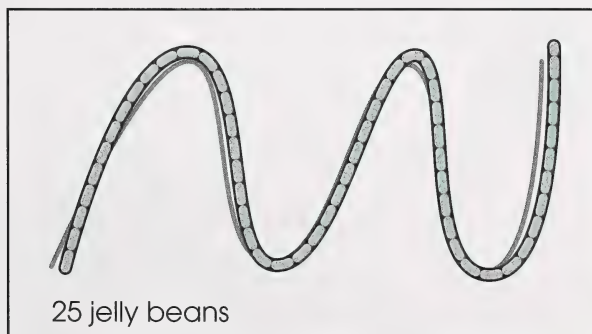
Encourage your student to check whether the number of units, for example, jelly beans, required to outline the curved line matches the number needed to measure the length of cut yarn.



At the bottom of the page, help the child record the following:

- the number of units required to measure the length of yarn
- the name of the nonstandard unit of measurement

Use glue or tape to attach the piece of yarn to the page.

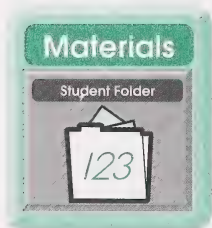


Take turns drawing curved lines, estimating, and checking the lengths with nonstandard units and matching-sized lengths of yarn.

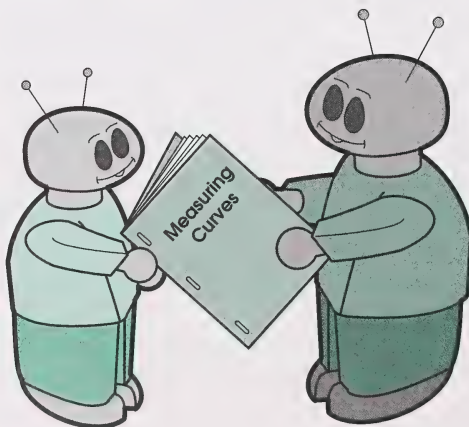
After three turns each, help order the student's personal curved-line pages from the lowest number of nonstandard units to the highest. Discuss which line has the fewest units and which has the most.



Attach front and back covers, and staple the pages together to make a booklet. Help the child print an appropriate title on the front cover. You could use the title **Measuring Curves**. Add the student's full name. Then print the abbreviated form of the module and day numbers, M8D6, on the back of the booklet.



Encourage the student to read the booklet to family and friends. When it is not being shared with others, place it in the Student Folder.







## Enrichment (optional)

### Computer Mathematics

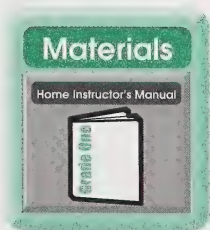
If you think that your student requires extra help or a challenge, you could provide some computer programs, such as the following:

- *Kid Pix*. Mattel, Inc.

This program will let your student stamp images on the screen, measure them, and compare measurement methods.

- *Math Blaster for First Grade*. Knowledge Adventure, Inc.
- *Mega Math Blaster*. Davidson and Associates, Inc.
- *Mighty Math*. Edmark Corporation.

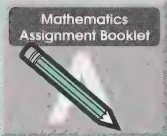
Also refer to your Home Instructor's Manual under the heading How the Computer Can Help You. This section talks about buying computer software and gives some Internet websites that could enhance your student's learning of mathematics.





Another curved road

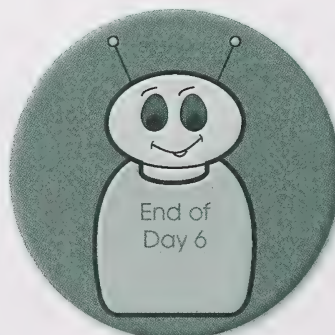
### Materials



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do Day 6: Assignment 1.

Next, follow the directions to do Day 6: Assignment 2.

Then complete Day 6: Learning Log. Under Student's Thoughts, help your student complete the questions.



# Day 7



## Calendar Time

**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure height
- using nonstandard units to estimate, measure, record, compare, and order by height
- comparing collected data using appropriate language, including quantitative terms such as *how many more*



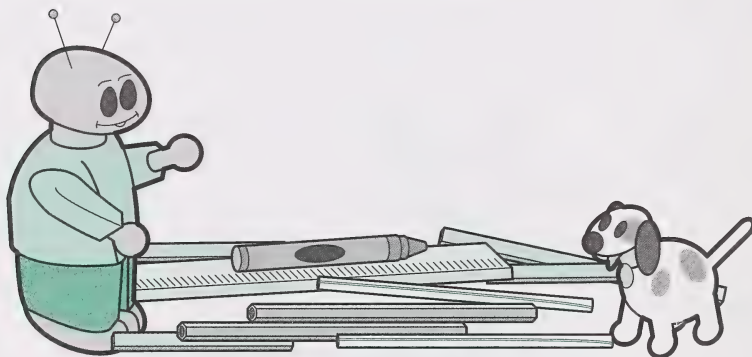


### Vocabulary (spoken only)

height	comparison	taller/tallest	highest
base line	shorter/shortest	same	order
starting line			

### Materials Required

- box containing required materials from the master list
- collection of items with linear attributes, for example, pencils, crayons, straws, rulers, and strips of paper
- modelling clay and at least 50 drinking straws or light sticks, such as wooden craft sticks or coffee stir sticks
- collection of household items, for example, paper towels, milk cartons, cereal boxes, soup cans, and various sizes of juice boxes (optional)



### Developing the Concept

Today, your student will review and further explore **height**.

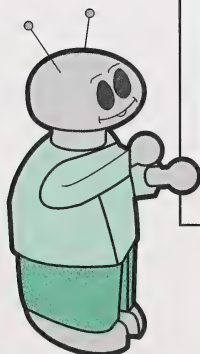
Begin by inviting the student to sit in front of a collection of items with linear attributes. For example, you could set out pencils, crayons, straws, rulers, and strips of paper.

Give your student a piece of paper, and have the child move one finger along the straight line made by the bottom of the paper.



Review that this will be the **base line**, or **starting line**, for comparing the height of the different objects. The base line provides each object with a fair chance, just like the starting line for runners in a race.

Ask the student to pick one object from the collection and place it very carefully on the starting line. This object will be used for **comparison**.



Now guide the student as follows.

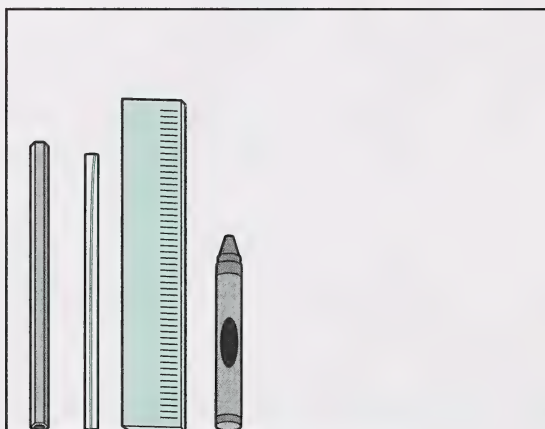


Pick one object that is **shorter** than the object that you have on your **base line**.

Place it on the base line **beside** your other object, to check whether it is **shorter** or **taller**.

Put your thumb on the **taller** object.

For about ten minutes, take your student through various examples of shorter and taller, picking a new reference object each time. Include a few examples of objects that are approximately the **same** height as well.



Provide the student with cards labelled **shorter**, **same**, and **taller**. Engage your student's interest by saying that these are for a game of Estimate and Check.

shorter

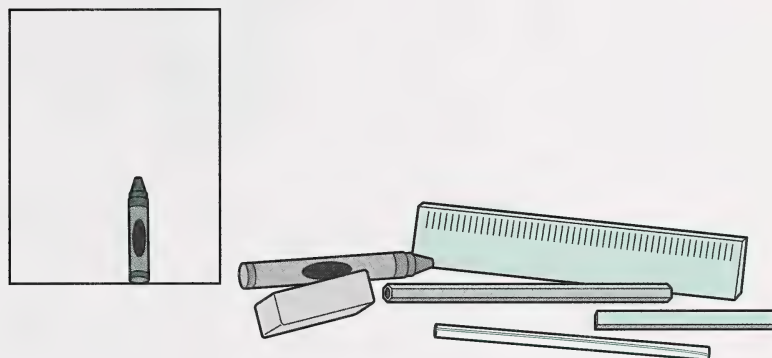
same

taller

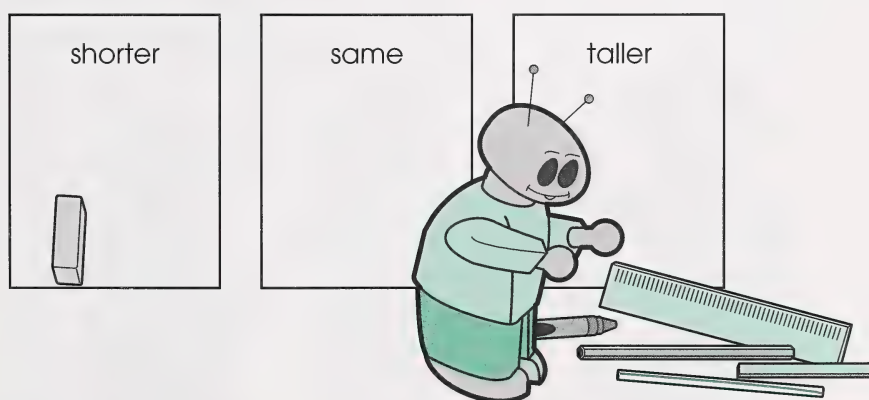


## Estimate and Check

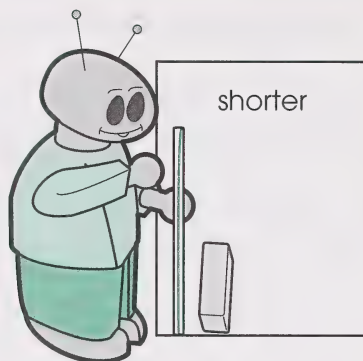
**Step 1:** Ask your student to choose one object from the collection of linear objects and place it on the same base line that was used in the previous activity.



**Step 2:** Based on this reference object, have the student estimate heights and sort the collection of objects into three groups: shorter, same, and taller.



**Step 3:** Ask the child to check the sorted objects by placing each one in turn on the base line beside the reference object. After each object is checked, it should be placed in the appropriate group.

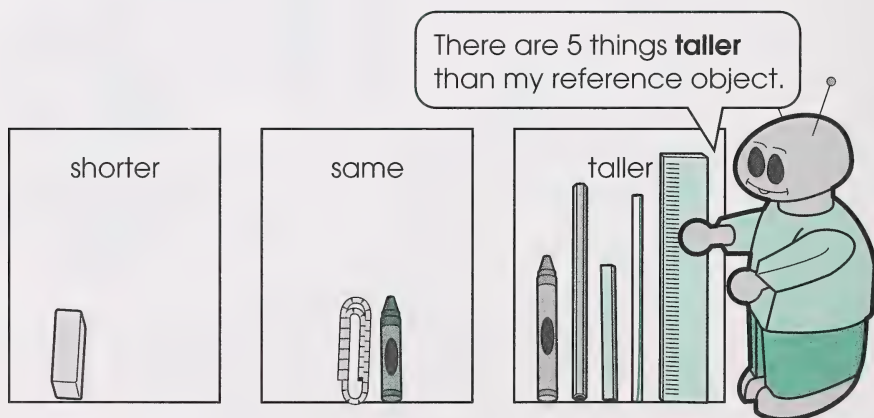


**Step 4:** Elaborate on the groups by including a discussion of numbers. Ask the following questions.

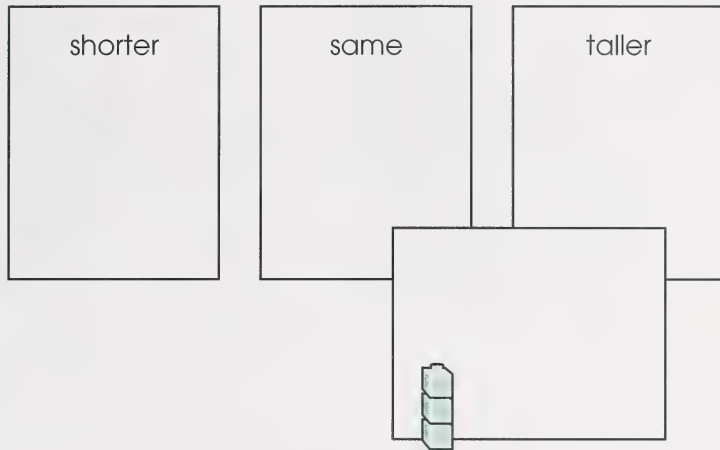
How many things did you find that are **taller** than your object?

How many things did you find that are **shorter** than your object?

Are there more things that are **taller** or more things that are **shorter**? How many more?

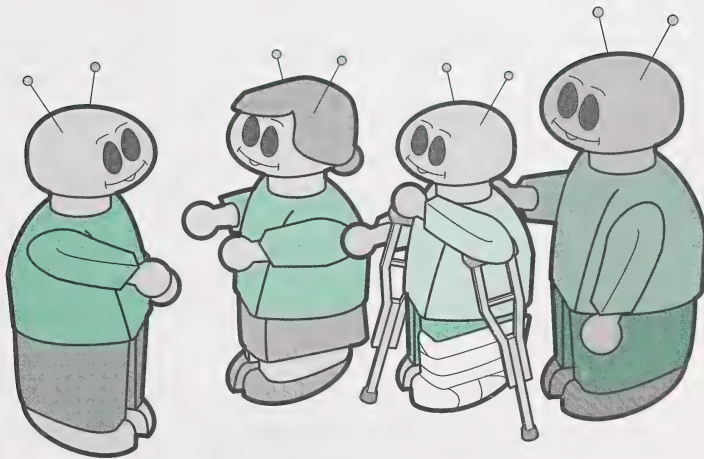


**Step 5:** Repeat this game a few more times, using a new reference object each time.



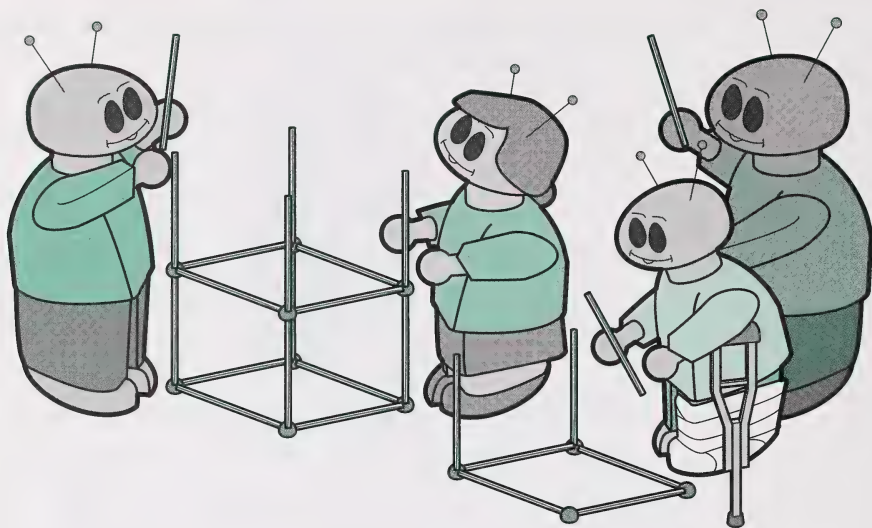
## Applying the Concept

**How High Is the Tower?**

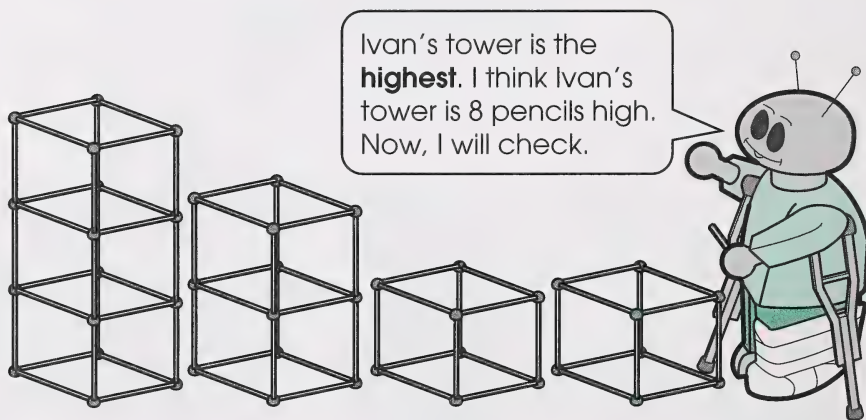


Gather together three or more people. Challenge each person to use modelling clay and straws or light sticks to make the **tallest** tower possible.





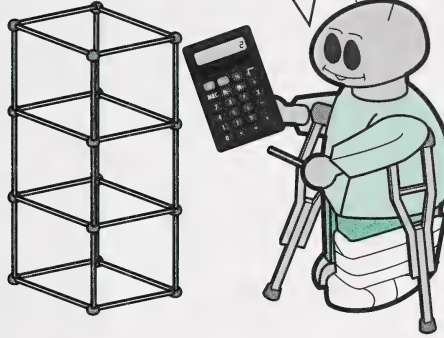
Once finished, have your student choose one appropriate nonstandard unit of measurement to tell which tower is the **highest**.



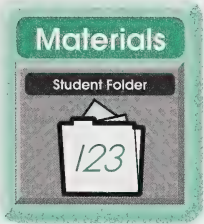
Record the actual number, and then help your student figure out the difference between the estimate and the measurement. A calculator can be used for this task.

Create a chart to show all the tower estimates and actual measurements. Entitle the chart **How High Is the Tower?**

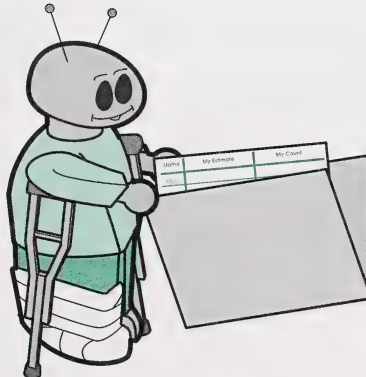
Ivan's tower is 10 pencils high.  
 $10 - 8 = 2$ . My estimate was  
 2 pencils out.



How High Is the Tower?		
Name	My Estimate	My Count
Mom		
Dad		
Irina		
Ivan	8 pencils	10 pencils



On the back of the chart, have the student's full name printed. Add the abbreviated form of the module and day numbers, M8D7. Place the chart in the Student Folder.

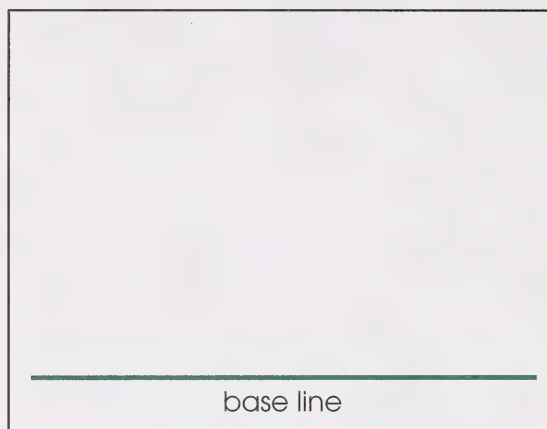


### Enrichment (optional)

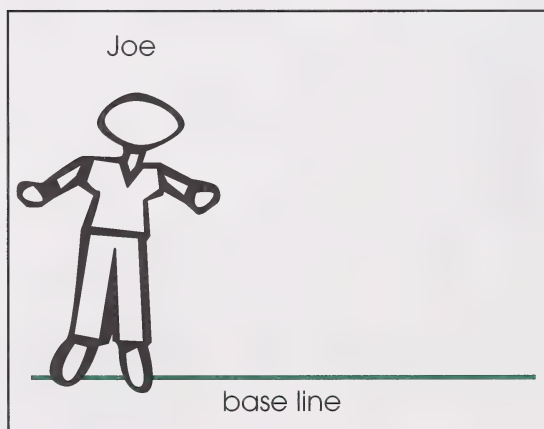
#### 1. Shorter and Taller

For this activity, your student will need a blank sheet of paper, pencil crayons, and a collection of objects with linear attributes.

**Step 1:** Help the child draw a base line on the paper.

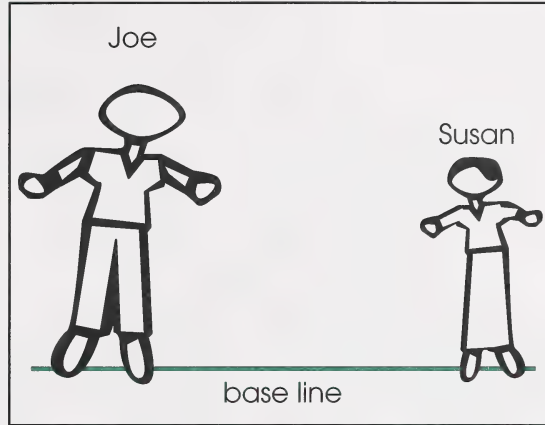


**Step 2:** Ask your student to draw a picture of a tall character on the left side of the page, beginning at the base line. Encourage the child to give the character a name.

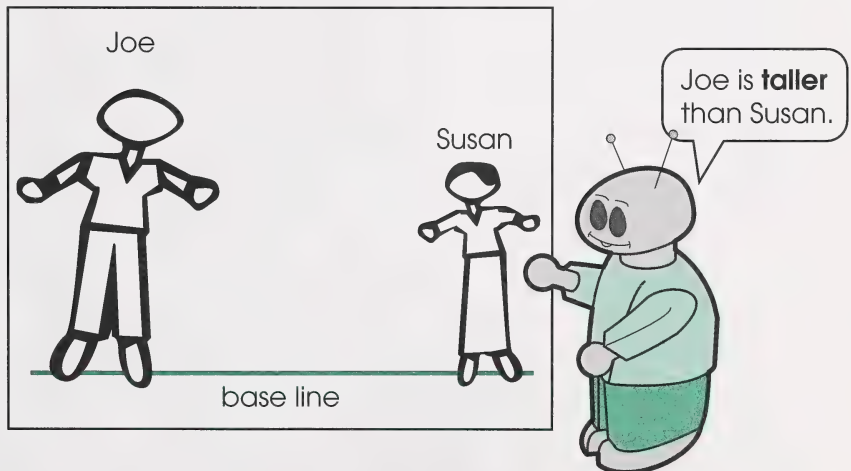




**Step 3:** Ask the student to draw a picture of a short character on the right side of the page, beginning at the base line. Also give this character a name.

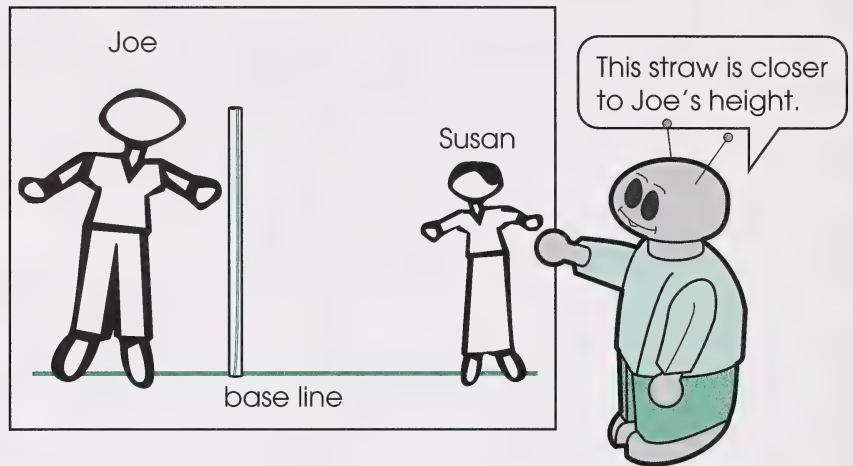


**Step 4:** Engage the child in a discussion about the characters on the base line. For example, you could say, “Tell me about your characters. Who is shorter? Who is taller?”

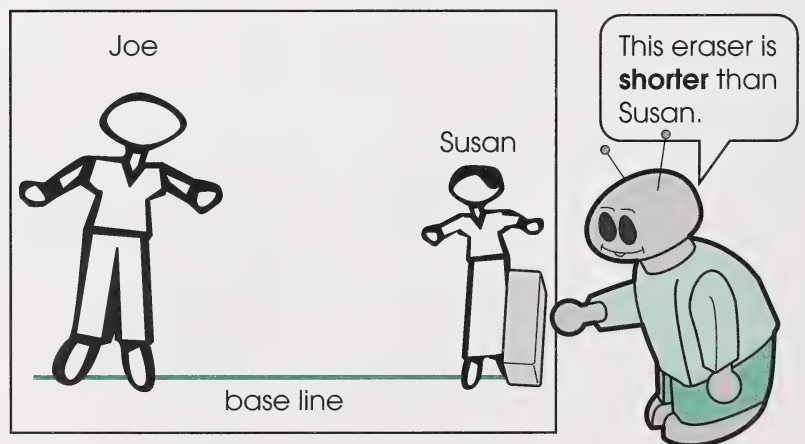


**Step 5:** Pick one item from the collection of linear objects.

If the item is closer to the height of the shorter character, ask the child to place it near this character. If the item is closer to the height of the taller character, place it near this character.



**Step 6:** Follow this procedure with all of the items in your collection. Some items may be taller or shorter than both characters on the page. If this is so, place these items to the right or left of the appropriate character.

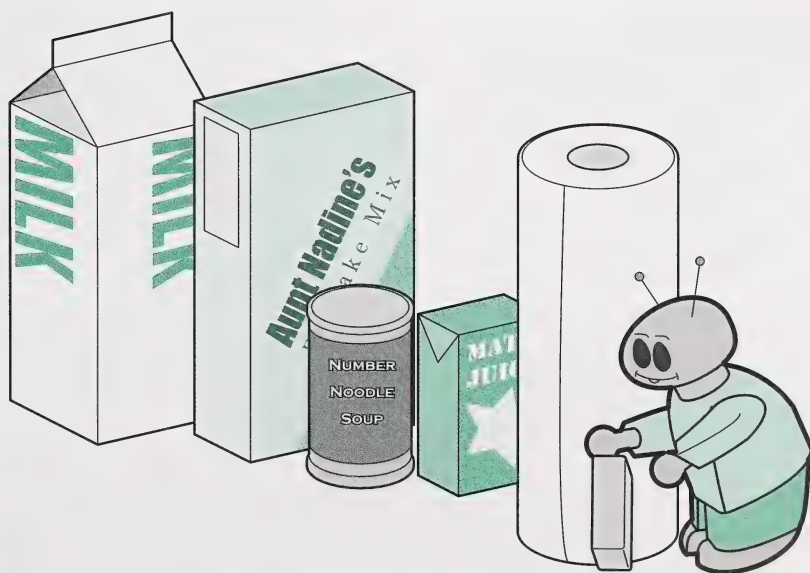


## 2. The Order of Things

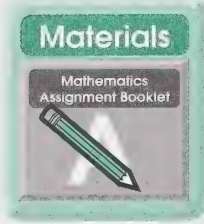
Set up a variety of household items for your student to **order** according to height.



Then extend this activity by having the child choose one nonstandard unit at a time to measure each item.







Turn to Mathematics Assignment Booklet 8A, and follow the directions to do both pages of the assignment for Day 7.

Then complete Day 7: Learning Log. Under Student's Thoughts, ask your student to colour the face that describes today's mathematics learning and then print a sentence or two explaining why.



# Day 8

## Activities

### Calendar Time



## Calendar Time

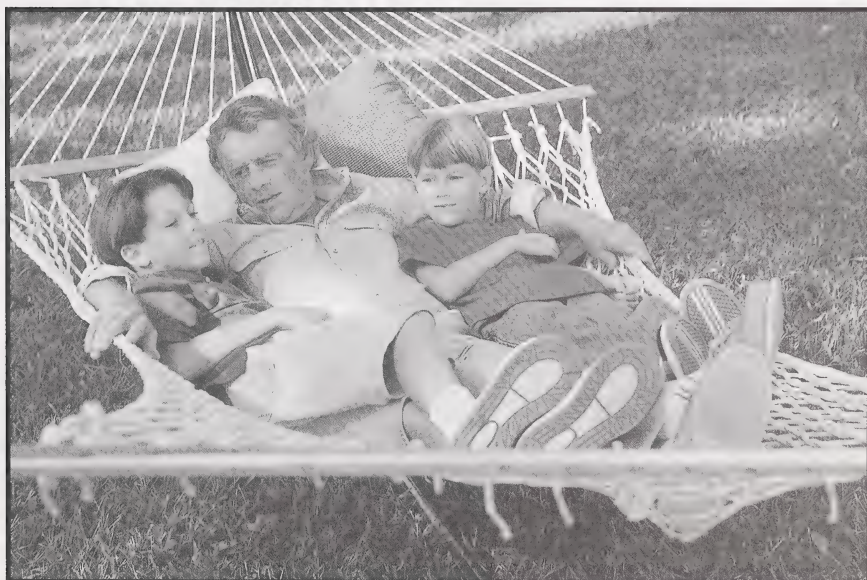
**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- selecting an appropriate nonstandard unit to measure length, height, distance around, and weight
- using nonstandard units to estimate, measure, record, and compare length, height, distance around, and weight
- comparing collected data using appropriate language, including quantitative terms such as *how many more*

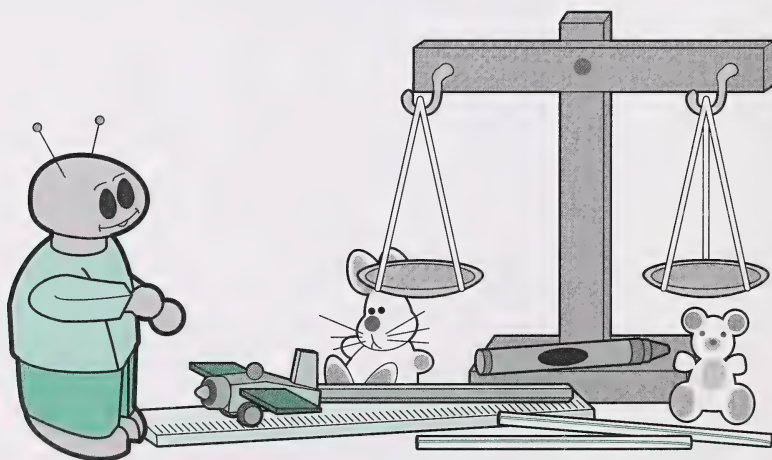


### Vocabulary (spoken only)

shorter	lesser
longer	heavy/heavier
same	light/lighter
length	weight
height	big
greater	tall
distance around	wide

### Materials Required

- box containing required materials from the master list
- two different-sized potatoes
- collection of items with measurement attributes, for example, pencils, crayons, straws, rulers, strips of paper, toys, and stuffed animals
- balance scale, previously constructed in Module 1, Day 16
- collection of items such as carrots, pineapples, rocks, favourite toys, and stuffed animals (optional)

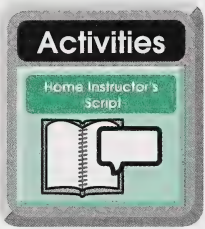




## Developing the Concept

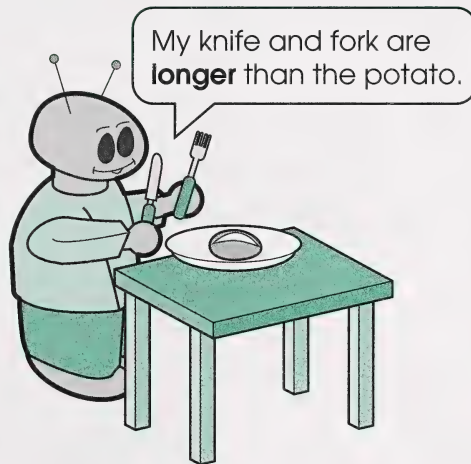
### Comparing Potatoes

Place a potato in front of the child. List the information gathered from the following discussion about this potato.



Name some items that are **shorter** than this potato.

Name some items that are **longer**.



What is about the **same length** as this potato?

Place the potato in a vertical position, and continue the script.

What are some things that are **taller** than this potato?

What are some things that are **shorter** than this potato?

Name some things that are about the **same height** as this potato.

Name some things that are a **greater distance around** than the potato.

Tell me about a few things that are a **lesser distance around** than the potato.

What are some things that are about the **same distance around**?

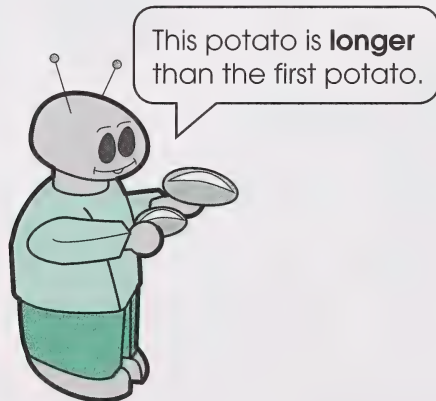
Suggest that the student place the potato in one hand and other objects to weigh in the other hand.

What are some things that are **heavier** than this potato?

Name some things that are **lighter**.

What are some things that are about the **same weight** as this potato?

Give your student another potato to describe.

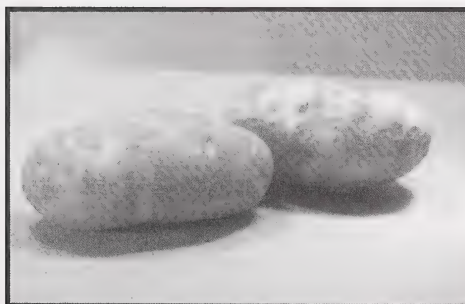
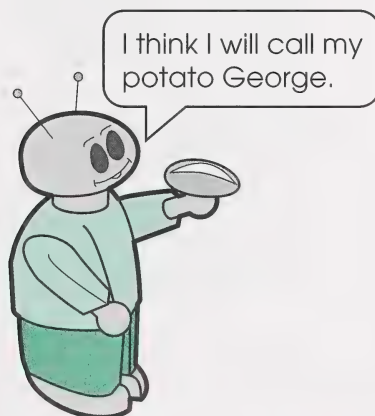


Record the student's observations about the second potato. If your student has not already done so, guide the child to include length, height, distance around, and weight descriptions. Call the list **My Potato**.

**My Potato**

- light brown in colour
- longer than first potato
- lots of curves
- taller than first potato
- wider than first potato
- heavier than first potato

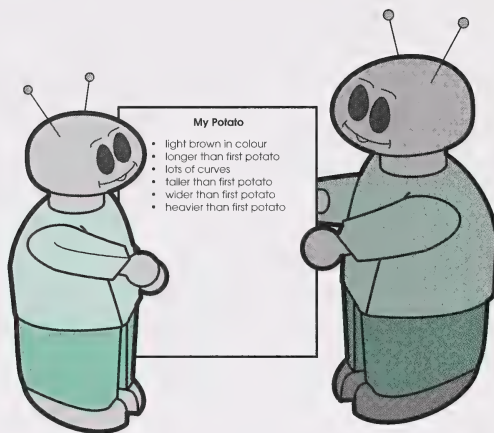
Once the child has no further descriptive observations to add to the list, you could encourage your student to pretend that this potato is a pet. Invite the child to give the potato pet a name.





### Applying the Concept

Post the list made earlier in Developing the Concept, and then read the potato observations with your student.



Next, proceed with the following discussion. List all of the child's ideas on a blank piece of paper.

You have learned that things that are **big** may be **long**, **tall**, **wide**, or **heavy**.

Name some things that are **longer** than your potato.

What are some things that are **shorter**?

Name things that are **taller**.

Name things that are **shorter**.

Place the potato in a vertical position.

What are some things that are a **greater distance around** than your potato?

Tell me about some things that are a **lesser distance around** than your potato.

What is **heavier** than this potato?

What is **lighter**?

Help the student make a booklet from the list of information.

### All About My Pet Potato

**Step 1:** Fold a sheet of construction paper in half to make the front and back covers of the booklet. Fold two sheets of blank loose-leaf paper to make the inside pages. Staple together along the fold.



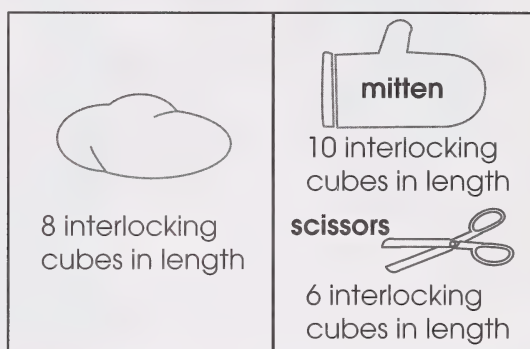
**Step 2:** On the front cover, have the child print the title **All About My Pet Potato**. Add the word **by** and the student's full name as author and illustrator.



**Step 3:** Have the student draw the pet potato on the first inside page.

Next, ask your student to choose a nonstandard unit and estimate the length of the potato. Check the estimate, and record the actual measurement.

On the adjoining page, have the student draw and label an object that is longer and one that is shorter than the pet potato. Then have the child estimate and print an actual measurement in nonstandard units for each object.

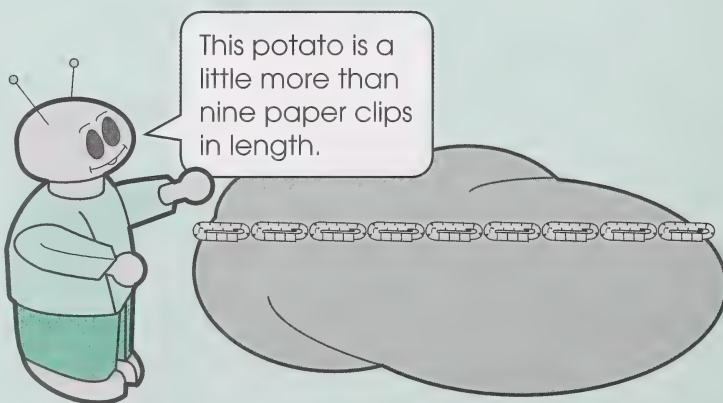


## Activities

### Teaching Tip






Review that when measuring an object with a nonstandard unit, the number of multiple units might not exactly match the object.








**Step 4:** On the next page, have the student draw the pet potato in a vertical position and estimate the height using the chosen nonstandard unit.

Check the estimate, and record the actual measurement.

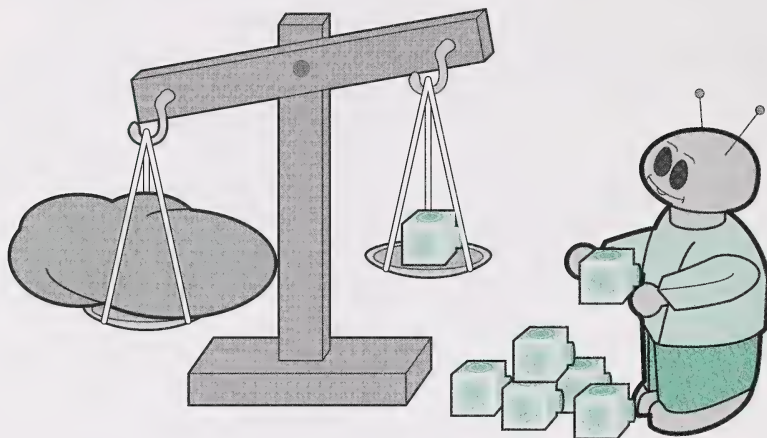
 <p>8 interlocking cubes in height</p>	 <b>doll</b> 25 interlocking cubes in height  <b>soup can</b> 5 interlocking cubes in height
---	---




On the adjoining page, help the child draw and label an object that is taller and one that is shorter than the pet potato. Then estimate and print the actual measurement in nonstandard units for each object.

**Step 5:** Follow a similar procedure for items that are a greater distance around and a lesser distance around and then for items that are heavier and lighter. Remember to include a brief comment about each illustration.

 <p>16 interlocking cubes around</p>	<p><b>bread</b> </p> <p>20 interlocking cubes around</p> <p><b>pencil holder</b> </p> <p>12 interlocking cubes around</p>
---	---

For weight, use the balance scale from Module 1, Day 16.



 <p>as heavy as 50 interlocking cubes</p>	 <p><b>book</b></p> <p>as heavy as 80 interlocking cubes</p>  <p><b>pencil</b></p> <p>as heavy as 3 interlocking cubes</p>
--	---

**Step 6:** Have your student print the abbreviated form of the module and day numbers, M8D8, on the back cover of the booklet.

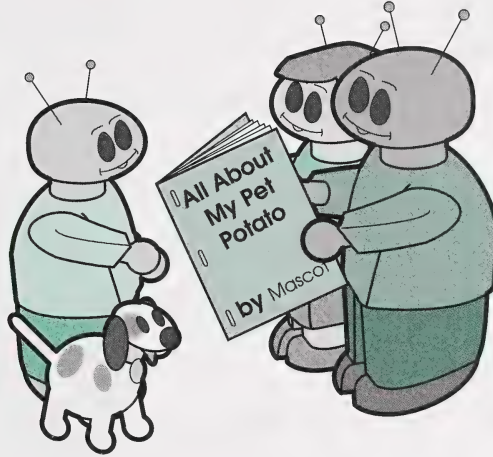


### Materials

Student Folder

123

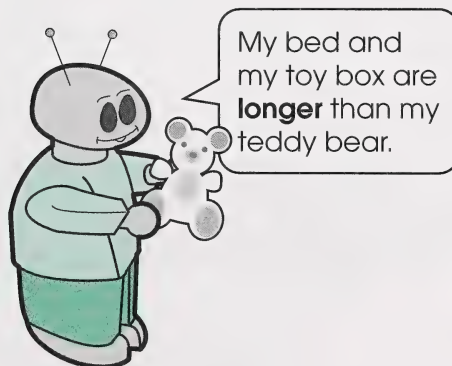
**Step 7:** Encourage the child to read and talk about the booklet with family and friends. When not being shared with others, place it in the Student Folder.



### Enrichment (optional)

#### All About My Pet \_\_\_\_\_ Booklet

Invite your student to make measurement comparisons for a booklet about various other things, such as carrots, pineapples, rocks, favourite toys, and stuffed animals.





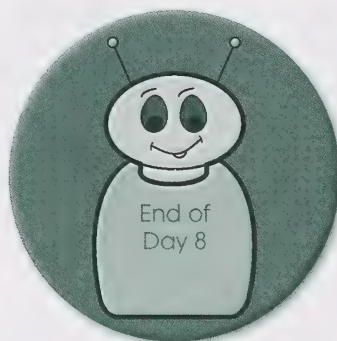
### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 8.

Then complete Day 8: Learning Log. Under Student's Thoughts, ask your student to shade in the face that describes today's mathematics learning and print a sentence or two explaining why.



# Day 9



## Calendar Time

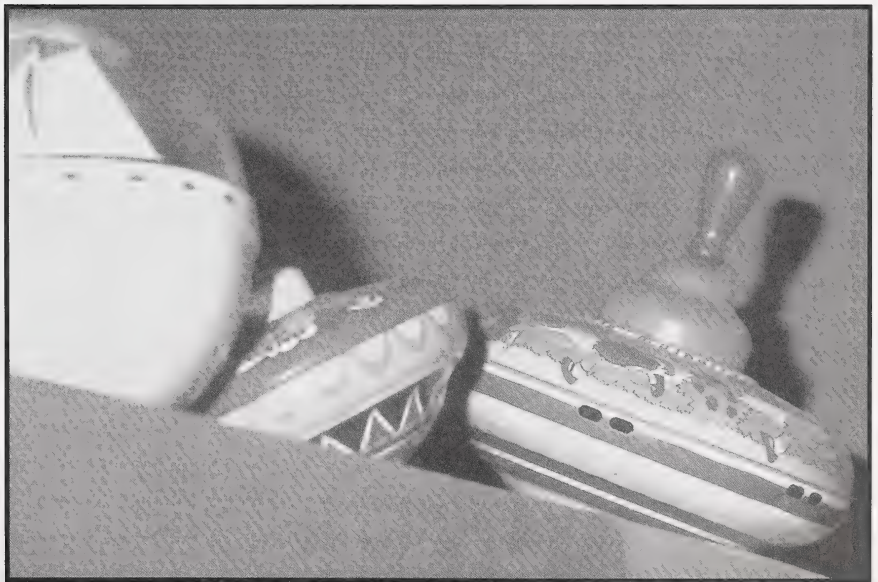
**Time recommended: 10 minutes**

Begin with Calendar Time activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating, measuring, and comparing the mass, or weight, of objects
- comparing collected data using appropriate language, including terms such as *heavier* and *lighter*

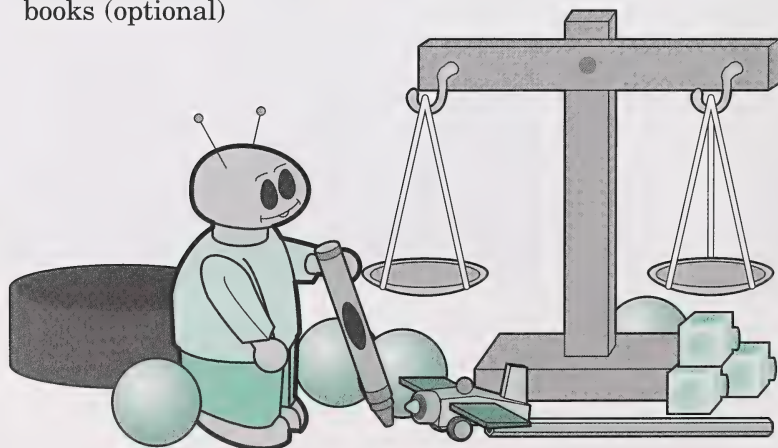


### Vocabulary (spoken only)

mass/weight	light	same	conservation
heavier	amounts	balance scale	lightest
small	more	balance	heaviest
heavy	less	balance sort	
large	lighter	conserve	

### Materials Required

- box containing required materials from the master list
- collection of items of varying mass, for example, pencils, crayons, bricks, books, feathers, straws, pillows, rocks, balloons, hockey pucks, cups, buttons, and marbles
- two identical containers with lids, such as cottage cheese or yogurt containers
- rice, sand, or another dry, pourable substance
- ball of yarn or string
- balance scale
- modelling clay
- collection of toys and stuffed animals (optional)
- collections of different kinds of objects, such as balls, shoes, and books (optional)





## Developing the Concept

Today, your student will use nonstandard units to estimate, measure, record, and compare the **mass**, or **weight**, of objects.

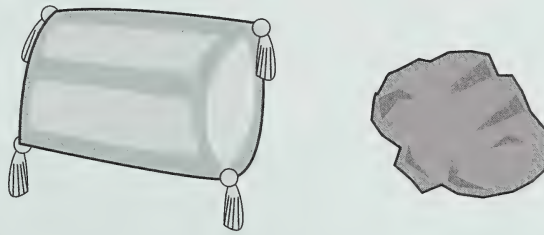
You will provide a variety of pairs of objects, one of which is much **heavier** than the other, and the student will hold one in each hand.

### Activities

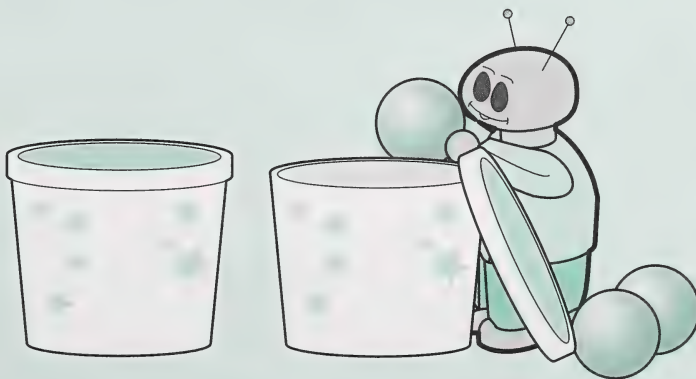
Teaching Tip



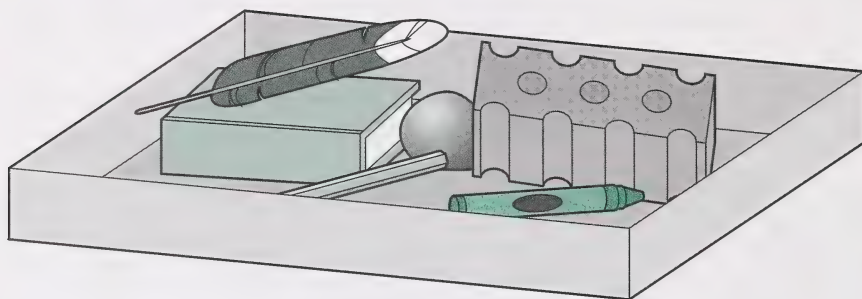
Children often think that a larger object always weighs more. Thus, provide some objects that are **small** and **heavy** and others that are **large** and **light**.



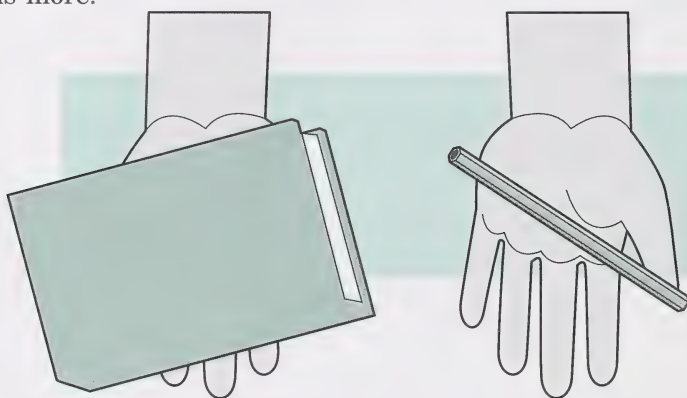
Your student will need experience comparing two objects that look the same but weigh different **amounts**. An easy way to provide this comparison is with identical containers filled to weigh different amounts. Cover the containers with lids, so the different amounts are not visible.



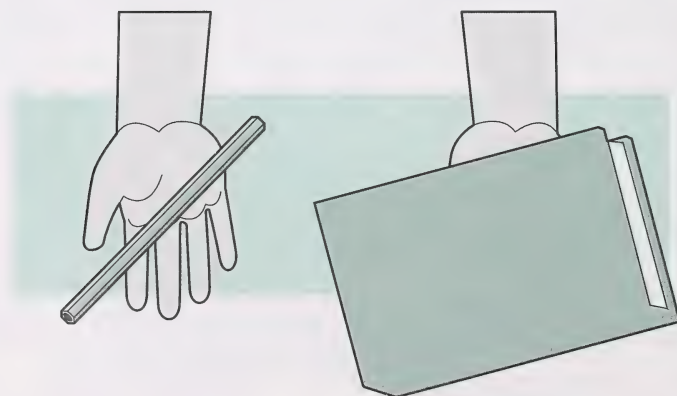
Ask your student to help you collect several items of varying mass, or weight, and place them in a box.



Show the child two objects that have obviously different masses, such as a pencil and a book. Have the student estimate which one weighs more.



Place the pencil in one of the child's hands and the book in the other. Ask which object weighs **more** and which weighs **less**.



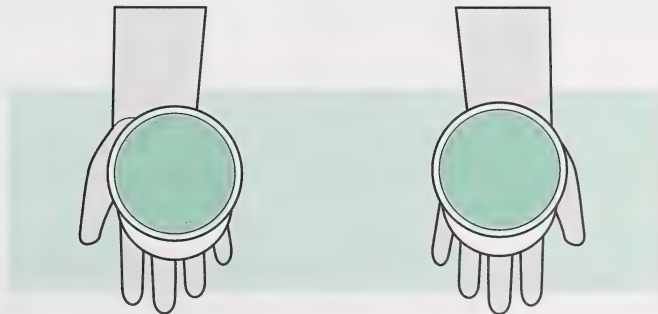
Repeat a similar procedure with other pairs of objects that have obviously different masses.



Next, fill the two identical containers with obviously different amounts of rice, sand, or another suitable substitute.



Ask your student to estimate which container is heavier and which one is lighter. Then place one container in each of the student's hands, and have the child say which one is heavier and which one is lighter.





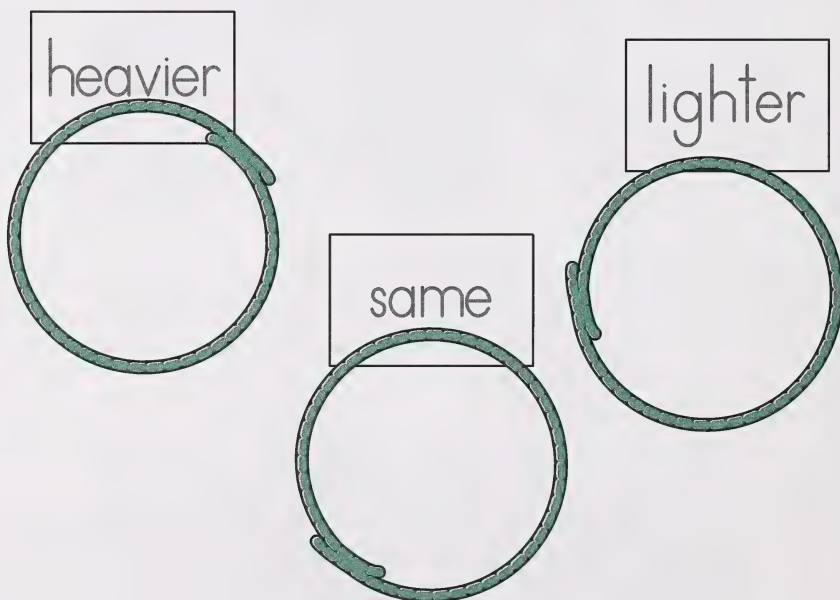
Take turns adding obviously different amounts of rice or other material to the containers. Challenge the other person to estimate and test to confirm which is heavier and which is lighter.

### Applying the Concept

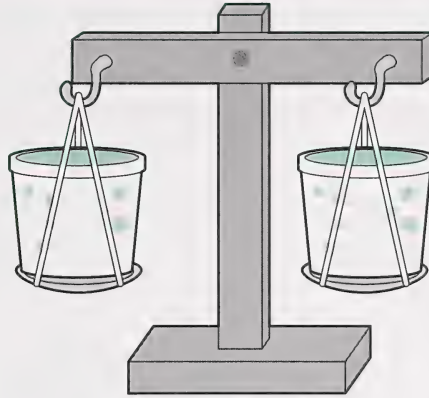
Help the student print the word **heavier** on one blank index card, **lighter** on a second card, and **same** on a third card.



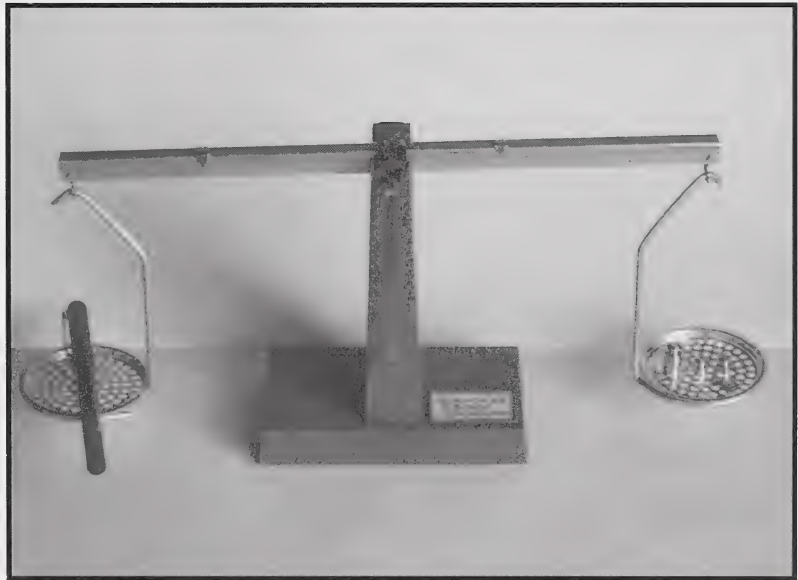
Help the child read the labels and place each card above a circle made from yarn.



Next, help the student put equal amounts of rice into two identical containers. Label one container with the child's name. Place one container in each basket of the **balance scale**.



Discuss how the scale should be in a balanced or very close-to-balanced position. **Balance** occurs when opposite sides or parts are the same.

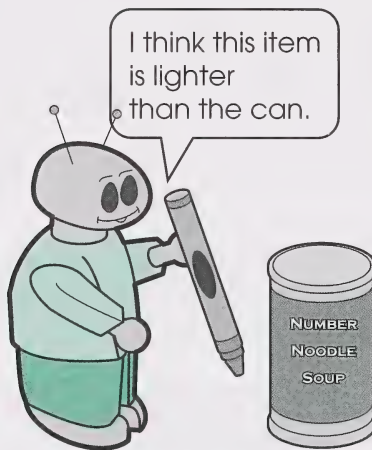


### 1. Balance Sort

Invite the student to choose one object as a reference from your previous collection of objects and then do the following:

- Estimate the weight of the remaining items according to whether they are lighter than, heavier than, or the same weight as the reference object.

- Use the balance scale to confirm estimates.
- Sort each item into a yarn circle according to whether it is lighter than, heavier than, or the same weight as the reference object.



### Activities

#### Teaching Tip



Take time to review that if the balance pan on one end of the scale is higher than the pan on the other end, then the higher end is lighter than the lower end.



Now repeat the activity, using the student's container of rice as the reference object.



Have the student record the results on blank paper. On one piece of paper, list the items that are heavier; on a second paper, list the items that are lighter; and on a third paper, list the items that are about the same weight as your student's reference container.

heavier	lighter	same weight
brick book	feather pencil	rock ball

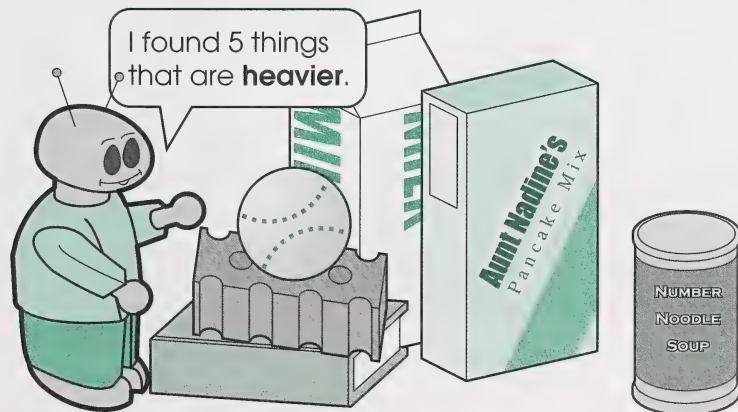
You can extend this activity to include a discussion of number, by asking questions similar to the following.



How many things did you find that are **heavier** (lighter) than your container?

Are there more things that are **heavier** or **lighter**?

How many more things did you find that are **heavier**?



## Materials

Student Folder

123

Staple together the sheets that say heavier, lighter, and same weight. On the back of the last sheet, print the child's full name and the abbreviated form of the module and day numbers, M8D9. Place in the Student Folder.

## 2. Conserving Mass

Use modelling clay to make two balls that are judged by the child to have the same amount of clay. In this activity, you can check your student's ability to **conserve** mass.

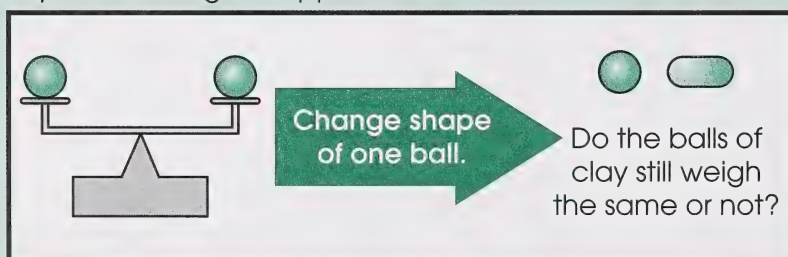
## Activities

Teaching Tip

The student's ability to conserve a concept involves recognizing that certain properties of an object remain unchanged, despite a change in the object's appearance.

One way you can identify that a student is functioning at a certain level of thinking and progressing within that level is the child's ability to recognize **conservation** in a variety of situations.

For example, when a student sees one clay ball from a matched pair being rolled into a sausage shape, the child must be able to mentally hold the amount of clay constant, despite its change in appearance.



If your student is unable at this time to conserve mass, or weight, keep in mind that the child is still a developing learner. Continue to provide a variety of opportunities to practise comparing and conserving weight.

Have your student roll one of the clay balls into a sausage shape. Ask the child whether it has more clay, less clay, or the same amount of clay as the other ball.

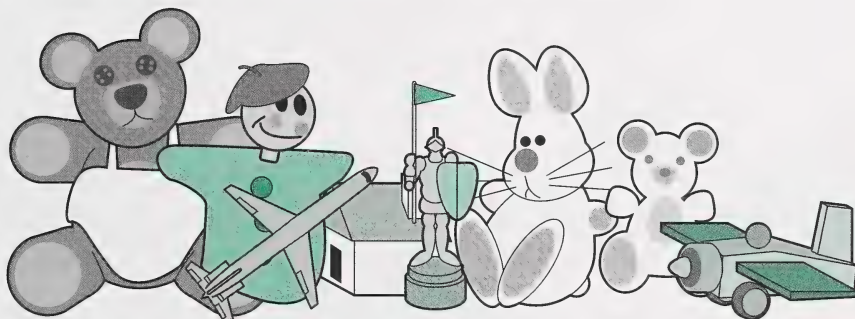
Encourage an explanation of why the student thinks that way.

## Enrichment (optional)

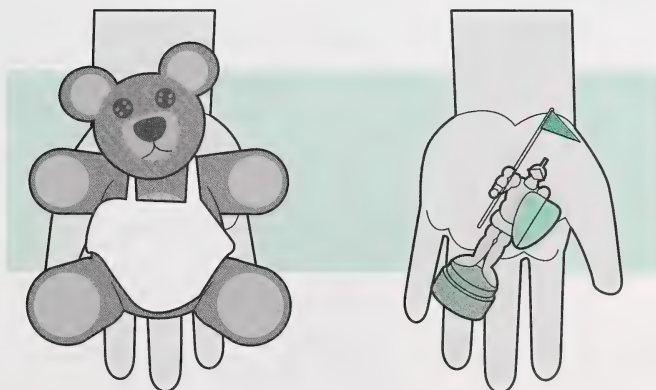
### 1. Weigh the Toys and Stuffed Animals

For this activity, your student will need favourite toys or stuffed animals and the balance scale.

**Step 1:** Ask the child to choose two of the toys or stuffed animals and estimate which toy is heavier and which is lighter.

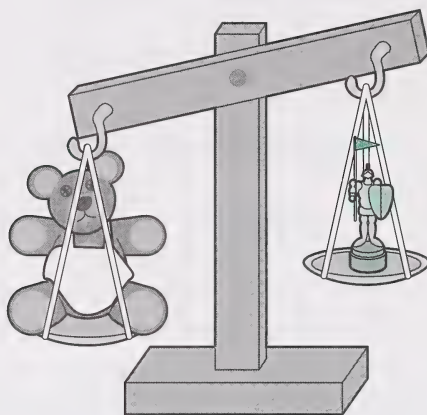


**Step 2:** Hold one of the toys in each hand, and ask your student to say which one is heavier and which one is lighter.



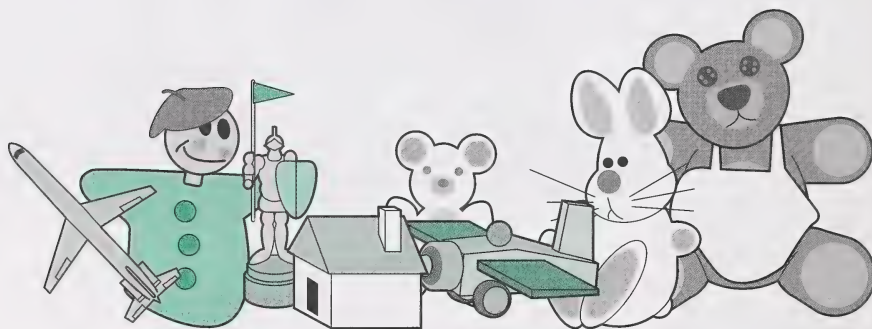


**Step 3:** Check by putting the toys on the balance scale.



**Step 4:** Repeat Steps 1 to 3 with the remaining toys.

**Step 5:** Line up the toys from **lightest** to **heaviest**.



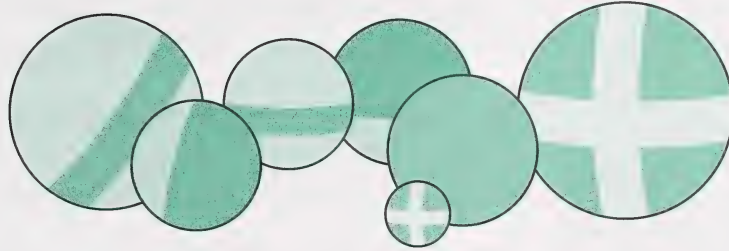
## 2. Ball Measurement

For this activity, you will need the balance scale and balls of different sizes, such as the following:

- beach ball
- soccer ball
- baseball
- tennis ball
- golf ball
- ping-pong ball
- foam ball

**Step 1:** Guide the student to sort the balls into as many different groups as possible.

For example, you might have balls that you kick, balls that you bounce, and balls that you hit with another object, or you could have big balls and small balls.



**Step 2:** Have your student order the balls from lightest to heaviest. Help the child record the order.



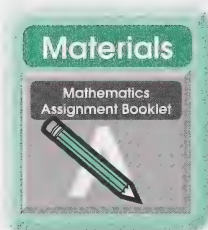
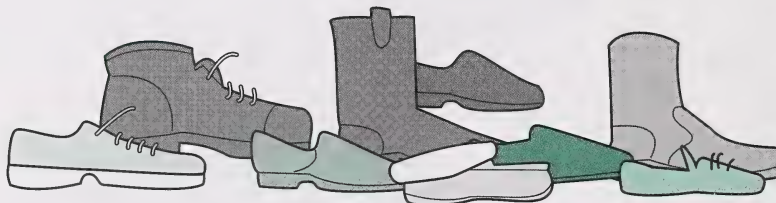
**Step 3:** Have the child order the balls from smallest to largest.



**Step 4:** Discuss the following questions:

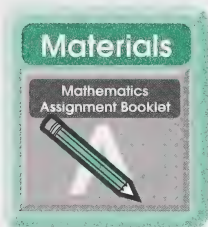
- Was the biggest ball also the heaviest?
- Was the smallest ball the lightest?
- Can you tell how heavy a ball is just by looking at it?

**Step 5:** Gather together other collections of items, for example, shoes or books. Sort and order each collection in different ways, such as lightest to heaviest or heaviest to lightest.



Turn to Mathematics Assignment Booklet 8A, and follow the directions to do the assignment for Day 9.

Then complete Day 9: Learning Log. Under Student's Thoughts, instruct the child to colour the face that describes this day's mathematics learning and print a sentence to explain why this face was chosen.



At the end of Mathematics Assignment Booklet 8A, follow the directions to complete Day 9, Student Folder Items. Take the required items from your Student Folder. Submit these items and Assignment Booklet 8A to your student's teacher for marking at the time the teacher has requested them.





# Day 10



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating, measuring, recording, and comparing the mass of objects, using nonstandard units
- comparing collected data using appropriate language, including quantitative terms such as *how many more*



### Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten.

mass	size
weight	larger
heavier/heaviest	order
lighter/lightest	kilogram
weighing	

### Materials Required

- box containing required materials from the master list
- balance scale
- collection of items of varying mass, for example, pencils, crayons, bricks, books, feathers, straws, pillows, rocks, balloons, hockey pucks, cups, buttons, and marbles
- approximately 100 pennies
- two other nonstandard units of measurement, for example, interlocking cubes, lima beans, steel marbles ("steelies"), rice, pasta, cereal, and sand
- picture books about mass (optional)
- various sizes of carrots or other vegetables to weigh (optional)
- bathroom scale (optional)

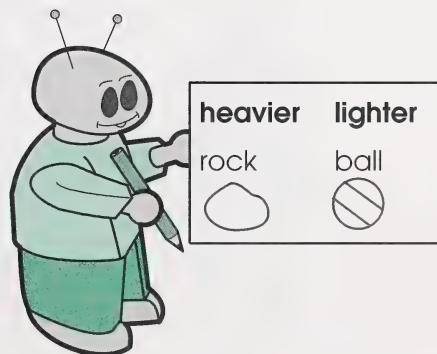
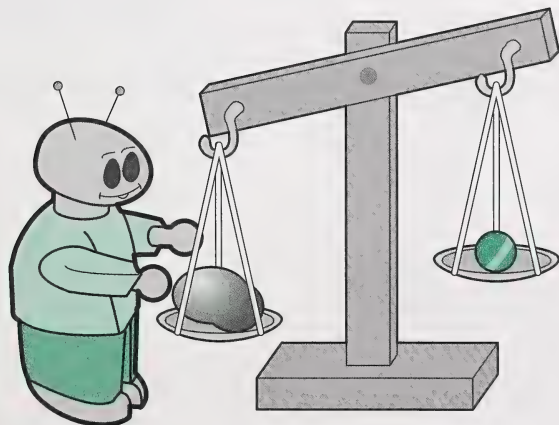
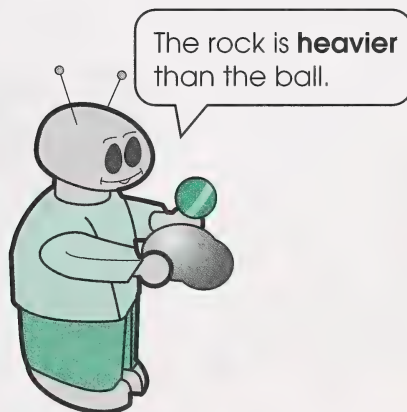
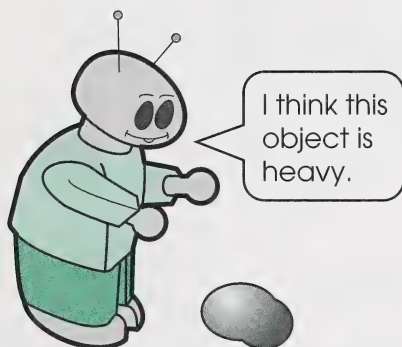
Save all materials for future activities. Plastic tubs and paper envelopes (new or used) are convenient containers for this purpose. Label containers with the names of their contents.

## Developing the Concept

Place in front of your student the balance scale and a different collection of objects from the ones used on the previous day.

While using the required material, give your student the opportunity to experiment with the following:

- estimating the **mass** of various objects
- comparing the **weight** of two objects by lifting one in each hand
- using the balance scale to confirm or correct estimates
- recording and comparing the difference between the estimate and the actual measurement

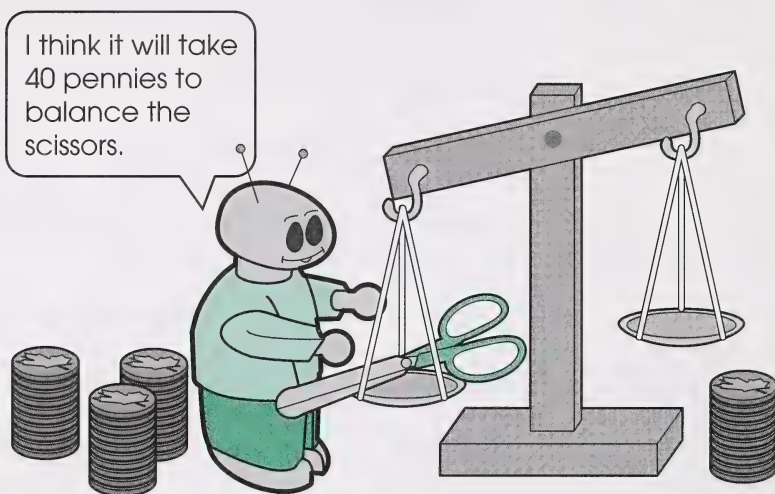




## Applying the Concept

### Mass in Pennies and Other Things

**Step 1:** Have the student select four items from the collection of objects. Then have the student estimate how many pennies it will take to balance each of the four items from the collection. Use the balance scale to check the estimate.



**Step 2:** Record the estimate and the results on a chart similar to the one shown below.

Measuring Mass

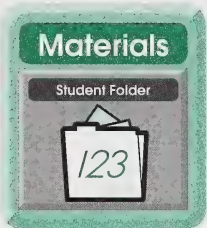
Object	Pennies					
	Estimate	Actual	Estimate	Actual	Estimate	Actual
blackboard eraser						
scissors						
pencil						
picture book						

After **weighing** each object with pennies, choose two other nonstandard units to use, for example, interlocking blocks, lima beans, or marbles.

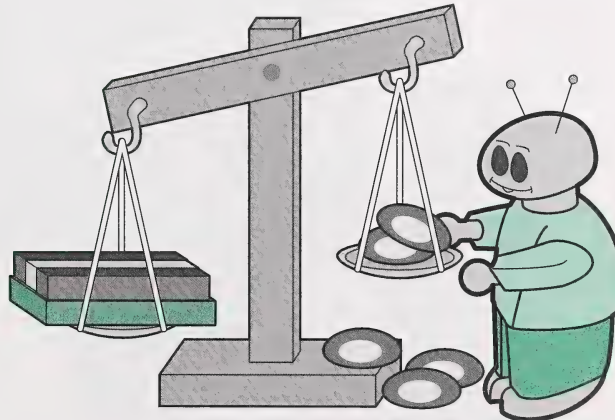
Label the top of the two blank columns with the chosen nonstandard units of measurement, and then record and compare your results.

### Measuring Mass

Object	Pennies		Interlocking Cubes		Marbles	
	Estimate	Actual	Estimate	Actual	Estimate	Actual
blackboard eraser						
scissors						
pencil						
picture book						



Label the back of the student's chart with the child's full name and M8D10 as the abbreviated form of the module and day numbers. Place the chart in the Student Folder.



## Enrichment (optional)

At this point, your student may need extra help or a challenge. If so, postpone the final assignment and your Learning Log comments until after one or more of the Enrichment activities.

**Note:** Use of these optional activities may require you to pace the student's progress throughout the module to accommodate special needs. For example, you will probably have to delay the final assignment until a later day. If this happens, include a review of pertinent information before doing the assignment.

### 1. Books About Mass

Visit the local library to find the following books on mass.

- *If at First* by Sandra Boynton
- *Mr. Gumpy's Motor Car* by John Burningham
- *Elephant in a Well* by Marie H. Ets
- *The Three Billy Goats Gruff* by Paul Galdone
- *What's in Fox's Sack?* by Paul Galdone.
- *The Biggest Pumpkin Ever* by Steven Kroll





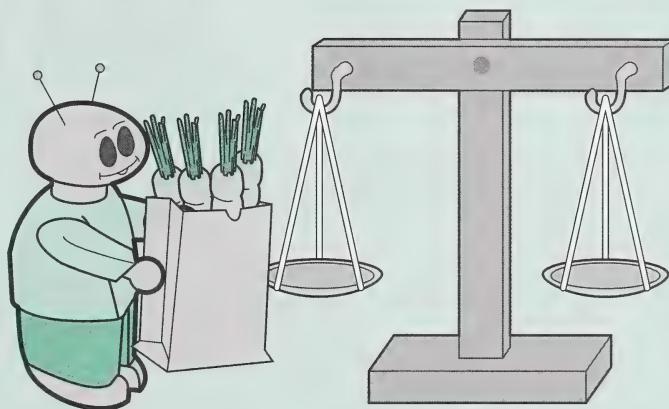
## 2. Carrot Mass

## Activities

teaching tip

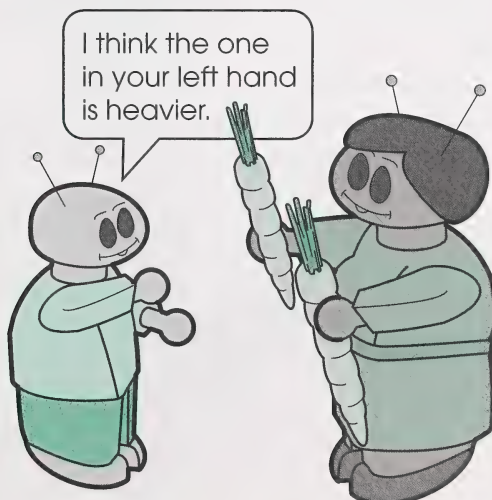


While the student is involved in this activity, continue to explore the relationship between **size** and mass by questioning whether an object that is **larger** than another must also be heavier.

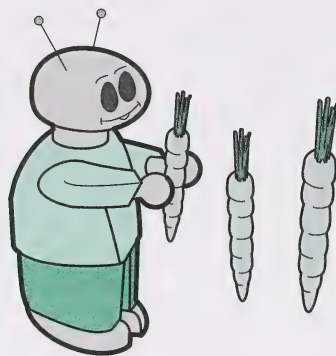


Challenge the student to suggest pairs of objects in which the larger object is the lighter object.

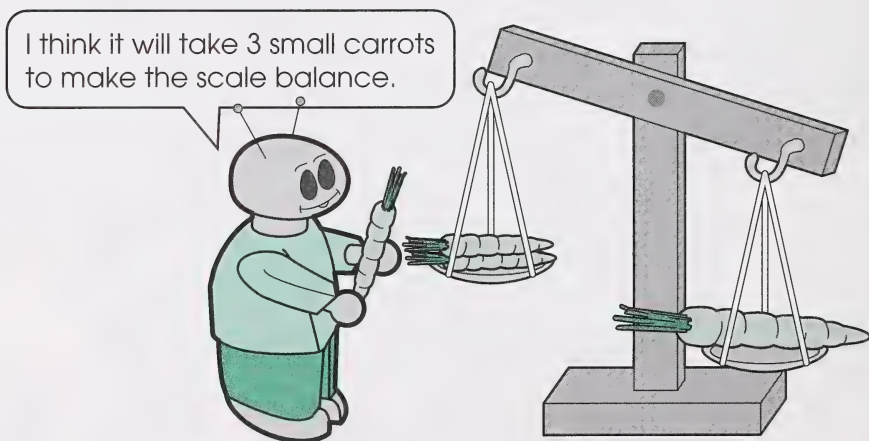
**Step 1:** Hold up two carrots and ask the student which carrot is **heavier**. Then have the student use the balance scale to check.



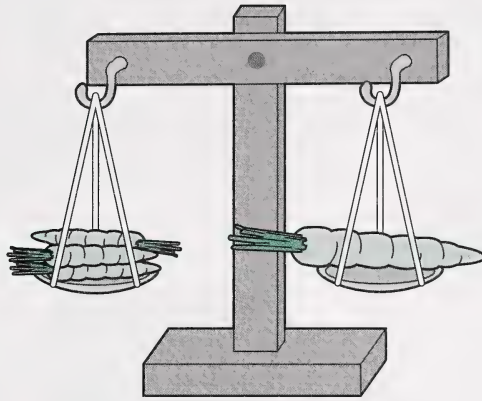
**Step 2:** Show the student three carrots and ask him or her to **order** the carrots from **lightest** to **heaviest**. Encourage the student to lift the carrots, as well as look at the size, to check the mass.



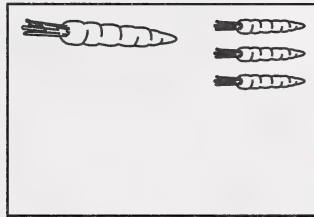
**Step 3:** Ask the student to place the heaviest carrot on one side of the balance scale and then to estimate how many **lighter** carrots it would take to balance it.



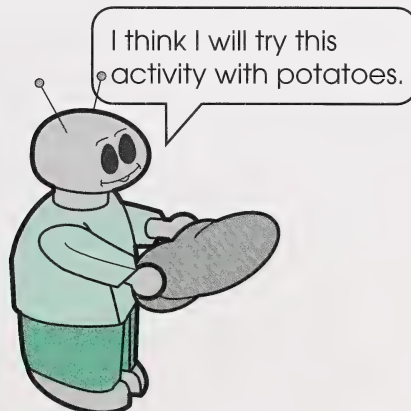
**Step 4:** Help the student find small carrots to balance the larger one.



**Step 5:** Encourage the student to think of a way of recording the findings. One example is shown below.



**Step 6:** Challenge the student to continue to balance heavier and larger carrots with lighter and smaller carrots. Try this activity with other vegetables as well.

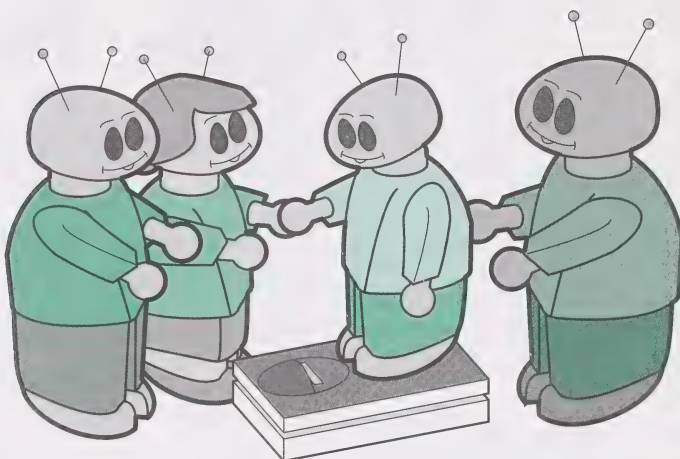




## 3. Using the Bathroom Scale

Invite your student and other people to stand on a bathroom scale to find their weight.

Review with your student that the term **kilogram** is a special unit of weight, or mass. This special unit is used to measure people and objects, such as vegetables.

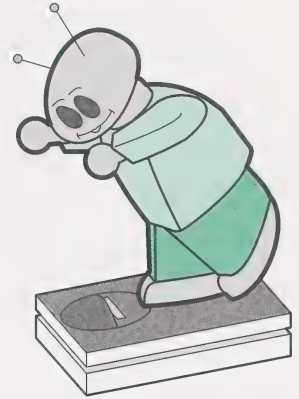


If agreeable with all participants, you could help the student record each person's weight on a chart similar to the one that follows. Record the student's weight, too.

Name	Weight
Dad	100 kg
Mom	68 kg
Big Brother	41 kg
Mascot	30 kg
C-Spot	15 kg

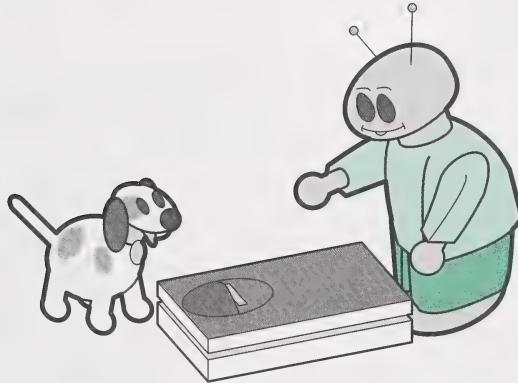
Then challenge the student and other participants to increase their mass by experimenting with different positions on the scale, for example, bending over or squatting down.

At other convenient times, consider having willing participants weigh themselves to see if they have gained or lost weight.



#### 4. Olympic Press

Place a bathroom scale on the floor and then encourage the student, other family members, and friends to take turns pressing down on the scale as hard as possible to measure strength.



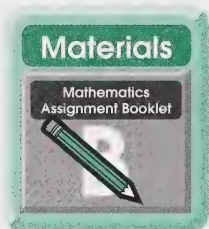
Record the results on a chart similar to the one shown below.

Name	Strength
Dad	35 kg
Mom	23 kg
Big Brother	13 kg
Mascot	10 kg
C-Spot	3 kg

Encourage participants to experiment with different positions and talk about the results.

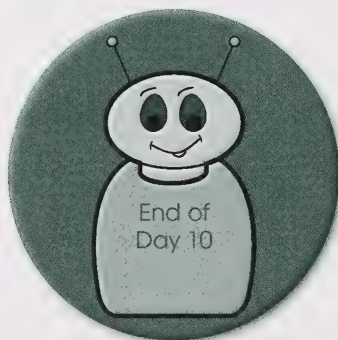
Some possible discussion questions might be as follows:

- Who had the highest score?
- What reason might there be for that person having the highest score?
- Which position do you think gives the best results?



Turn to Mathematics Assignment Booklet 8B, and follow the directions to do the assignment for Day 10.

Then complete Day 10: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to estimate, measure, record, and compare the mass of objects?





# Day 11



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating, measuring, recording, and comparing the volume of containers, using nonstandard units
- comparing collected data using appropriate language, including quantitative terms such as *how many more*



## Vocabulary (spoken only)

ten-gallon hat  
capacity  
volume  
space  
attribute

compare/comparison  
unit of measure  
holds more  
holds less

holds about the same  
cup  
eyedropper  
ice cream scoop

## Materials Required

- box containing required materials from the master list
- four-litre plastic pail (optional)
- collection of non-breakable containers of various capacities or volumes and shapes, for example, pop cans and bottles, juice containers, vases, pill containers, buckets (pails), bowls, drinking glasses, cups, cans, pans, an eyedropper, and an ice cream scoop
- funnel
- water or another pourable substance, such as rice or oatmeal
- sink, bathtub, washtub, or large pail
- cloths to wipe up spills
- library books (optional)



## Developing the Concept

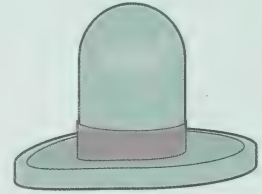
In today's lesson, you will challenge the student to see how good the child is at estimating, measuring, recording, and comparing the volumes of containers, using nonstandard units of measurement.

### Activities

#### Teaching Tip



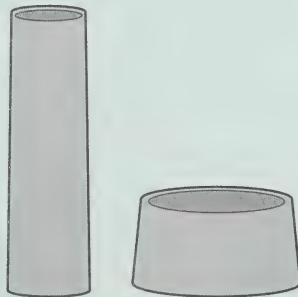
You or the student might have heard the term **ten-gallon hat**. Such a hat never really had the **capacity** to hold ten gallons of water, but it was called this as a joke, partly because it was very large. You could use this information to introduce your student to the concept of capacity. If so, be sure to show the student a large



container that would hold a similar capacity to one gallon, so that the student might understand the humour of a hat that would be ten times as large. A four-litre plastic ice cream pail is a modern-day container that the student could identify with as being almost one gallon in capacity.

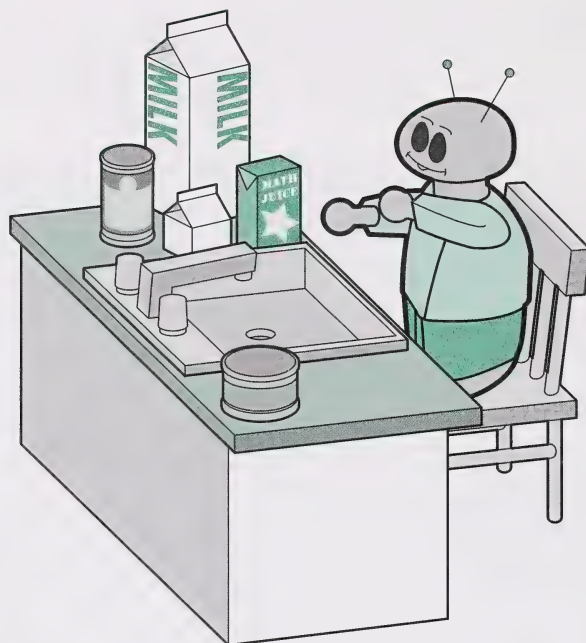
Capacity means the largest **volume** that can be held in a **space**. You could explain this **attribute** of containers to the student by asking, "Which one holds more?"

Although perceptual **comparisons** can be made between two containers, a young child often makes a comparison based on height rather than on capacity. For example, when asked which holds more, a tall container or a short container, most young children will choose the tall container, even if the shorter one may actually hold more.





## Measuring Volume



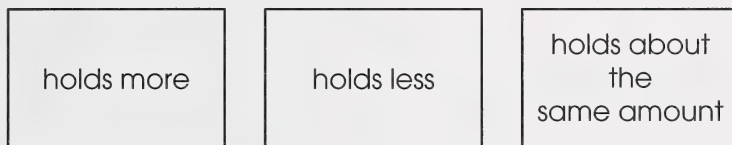
**Step 1:** Label one container **unit of measure**. This container is the one against which the others will be compared.

**Step 2:** Display the labelled container separately from the other containers.

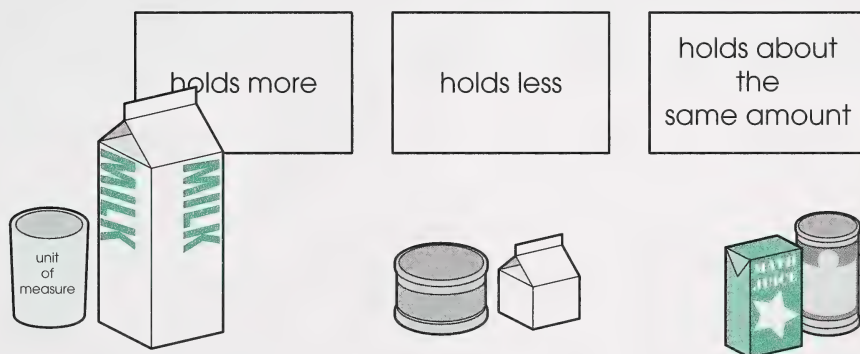
**Step 3:** Take three blank index cards and label one **holds more**, another **holds less**, and the third one **holds about the same amount**.



**Step 4:** Place the labelled index cards in such a way that each card is clearly separated from the other cards.



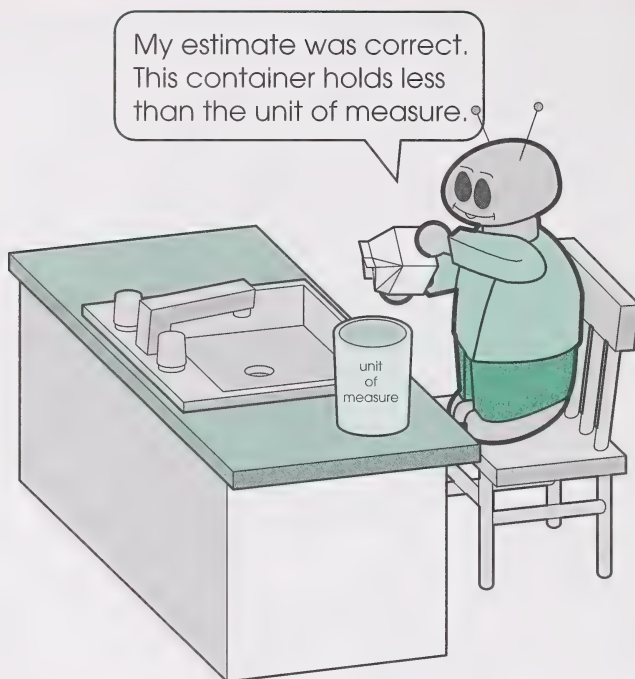
**Step 5:** Ask the student to estimate and sort the collection of containers into three sets: those that hold more, those that hold less, and those that hold about the same amount as the unit of measure.



**Step 6:** At an appropriate location such as a sink, ask the student to fill each container with water or another suitable substitute and **compare** the container against the chosen unit of measurement, for example, an empty soup can or a **cup**.

Guide the student to fill each container to the top in order to make accurate comparisons.

If necessary, have the student re-sort the containers according to the information learned while making comparisons.



## Applying the Concept

### Measuring Volume, Using Nonstandard Units

**Step 1:** Gather the following materials for this activity:

- pill bottle, pop container, soup bowl, pail, pan, plastic juice glass, milk carton, and soup can
- cup, **eyedropper**, and **ice cream scoop**, or other similar measures





## Activities

### Teaching Tip



While your student is involved in this activity, provide opportunities to consider the size of the unit in comparison to the item to be measured.

The unit should usually be smaller than the object but large enough so that your Grade One student is not required to count higher than 100.

It would take a lot of drops to fill this pail.



**Step 2:** On a blank sheet of loose-leaf paper, set up a chart similar to the one shown below.

## Measuring Volume

Item Measured	Units of Measure (Check one.)			Estimate	Actual
	cup	eyedropper	scoop		
pill bottle					
plastic jar					
pop container					
soup bowl					
pail					
pan					
plastic juice glass					
milk carton					
can					

**Step 3:** For the first item on the chart, ask the student to choose a suitable unit of measurement. The possible units of measure are a cup, an eyedropper, and an ice cream scoop.

I think I will use an eye dropper to measure the volume of the pill bottle.



If an inappropriate unit is chosen, guide the student to discover that the task can be made easier by choosing an appropriate unit of measurement.

**Step 4:** Estimate the measurement and record it in the space provided on the chart.

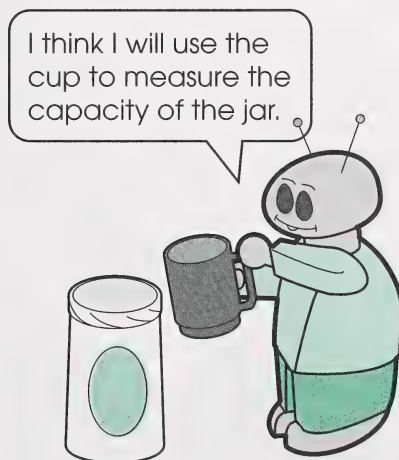
## Measuring Volume

Item Measured	Units of Measure (Check one.)			Estimate	Actual
	cup	eyedropper	scoop		
pill bottle		✓		100	
plastic jar					
pop container					
soup bowl					
pail					
pan					
plastic juice glass					
milk carton					
can					

**Step 5:** Measure, using the chosen nonstandard unit, and then record the measurement on the chart.

Item Measured	Units of Measure (Check one.)			Estimate	Actual
	cup	eyedropper	scoop		
pill bottle		✓		100	98
plastic jar					
pop container					
soup bowl					
pail					
pan					
plastic juice glass					
milk carton					
can					

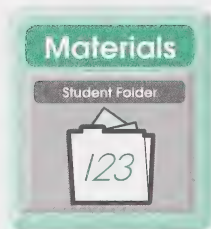
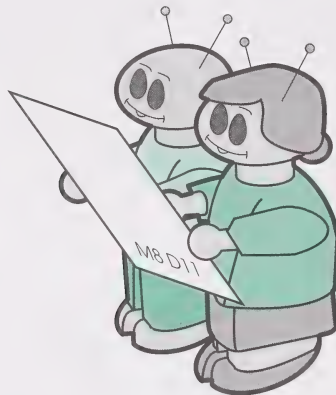
**Step 6:** Repeat Steps 1 to 5 for the remaining items on the chart.





**Step 7:** On the back of the completed chart, have the student print full name and the abbreviated form of the module and day numbers, M8D11.

Encourage your student to talk about the chart with family and friends.

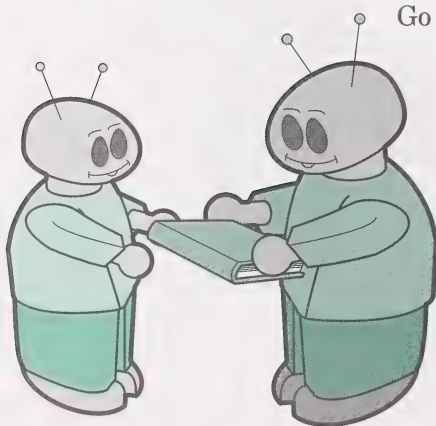


When the chart is not being shared with others, place it in the Student Folder.

### Enrichment (optional)

#### 1. Visit the Library

Go to your local library, and look for books such as the following about volume.



- *My Measuring Cup* by Joanne Barkan
- *The Very Hungry Caterpillar* by Eric Carle
- *The Hungry Cat* by Phyllis King
- *The Giant Jam Sandwich* by John Vernon Lord
- *Jam: A True Story* by Margaret Mahy
- *Capacity* by Henry Pluckrose
- *The Apple Bird* by Brian Wildsmith
- *Sizes* by Gillian Youldon

## 2. Container Collection

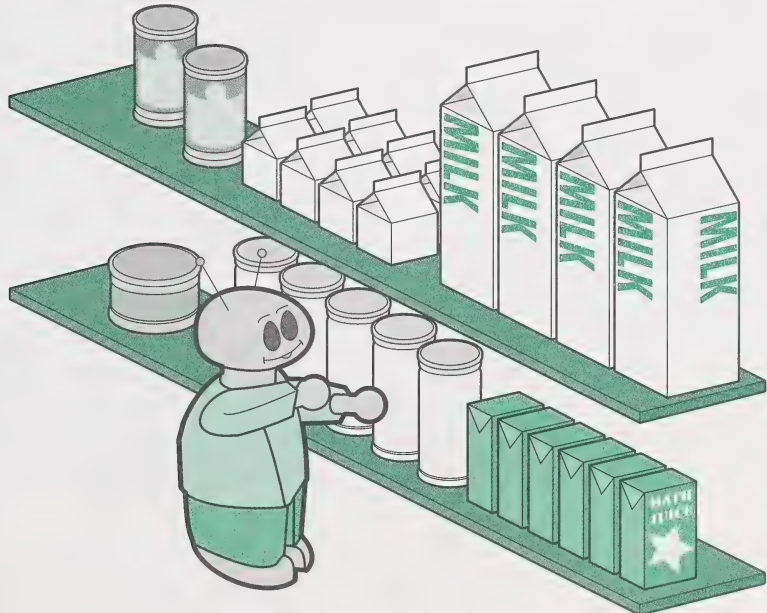
Encourage the student to make a collection of different containers, for example, cans, boxes, bottles, baskets, and bags.



Discuss with your student how the collection can be sorted. Following are two suggestions:

- by size, for example, large or small
- by material, for example, paper, glass, cardboard, or foam

At another time, you could encourage your student to use the collection of containers to set up a store.



### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8B, and complete Day 11: Learning Log. Under Student's Thoughts, ask your student to shade in the face that describes what the student thinks about today's mathematics learning. Then print a sentence or two explaining why.





# Day 12



## Calendar Time

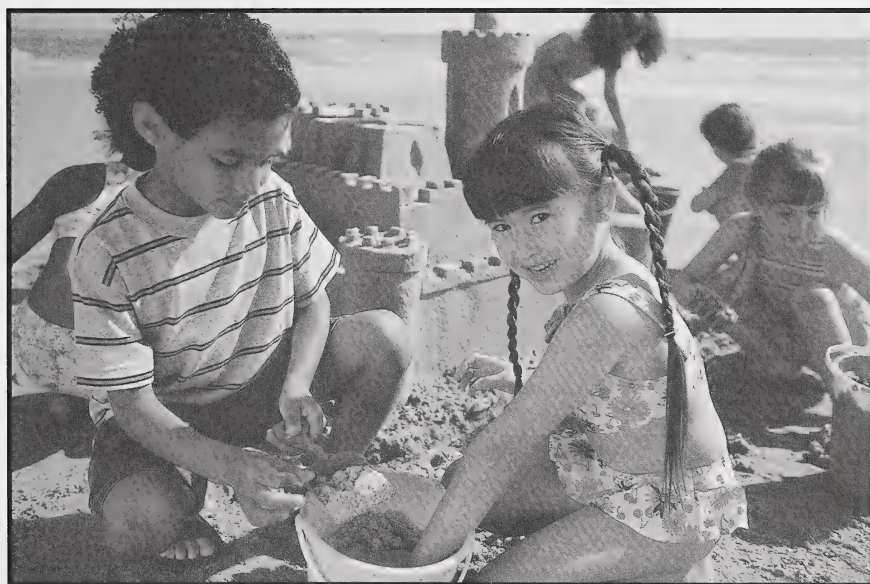
**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating, measuring, recording, and comparing the volume/capacity of containers using nonstandard units
- comparing collected data using appropriate language, including quantitative terms such as *how many more*

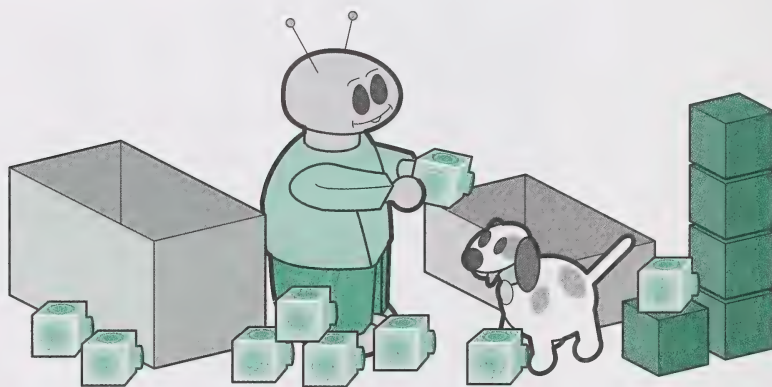


### Vocabulary (spoken only)

volume  
amount  
space  
shape  
capacity  
appropriate  
most  
least  
rectangular prism

### Materials Required

- box containing required materials from the master list
- various sizes and shapes of baskets, boxes, and containers
- nonstandard units of measurement, for example, interlocking cubes, wooden or plastic blocks, and paper clips



### Developing the Concept

In today's lesson, your student will be estimating, measuring, recording, and comparing the volume of containers, using nonstandard units of measurement.

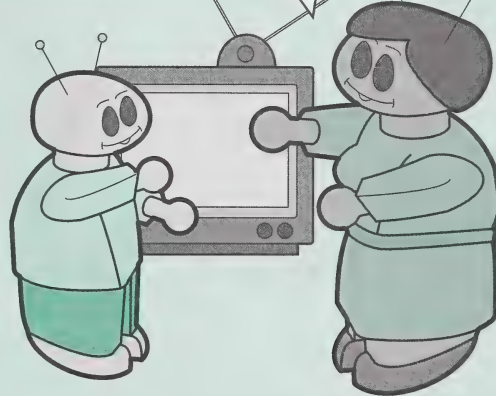
## Activities

Teaching Tip



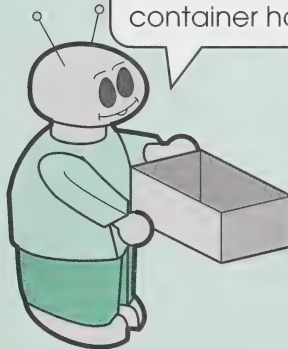
Discuss with your student that at one time or another you might have asked that the volume on the television or radio be turned down.

Please turn down the volume on the TV.



In mathematics, however, the word **volume** does not refer to the loudness of sound. Instead, it refers to the **amount of space** used by a **shape**.

I wonder how many balls this container holds.

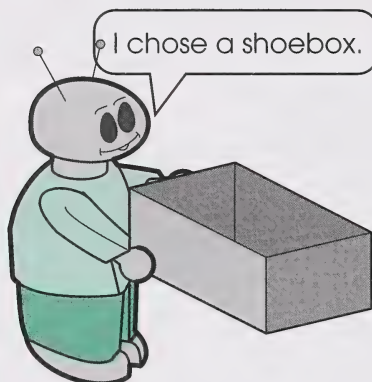


There is a close connection between the terms **volume** and **capacity**.



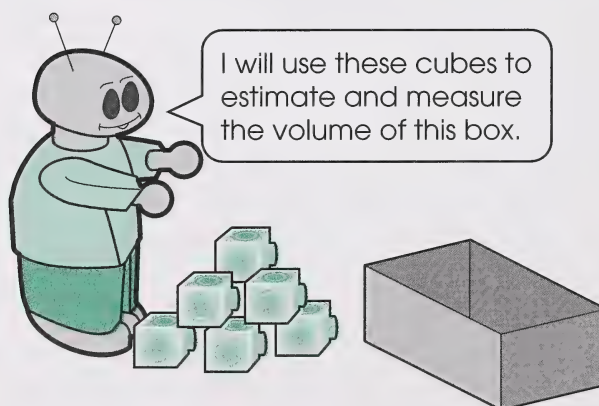
### Measure the Volume

**Step 1:** Have the student choose one container from a variety of baskets, boxes, and other containers.



**Step 2:** Ask the student to choose an **appropriate** unit of measurement, for example, interlocking cubes, wooden blocks, balls, or other suitable substitutes. Guide the student to consider the size of the unit in comparison to the item being measured.

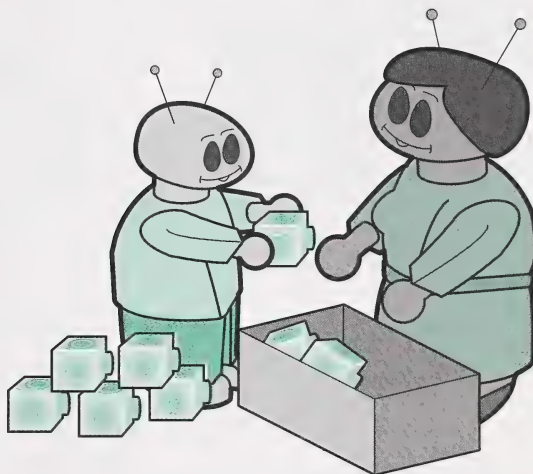
Then have the student estimate how many of these units will fit into the chosen container. Record the estimate.



**Step 3:** Have the student use the appropriate unit of measurement to fill the container. Count to see how many units are in the container, and then record the results.

Have a partner repeat the activity. Compare the two results.

Units you place to fill Count _____
Units your partner places to fill Count _____

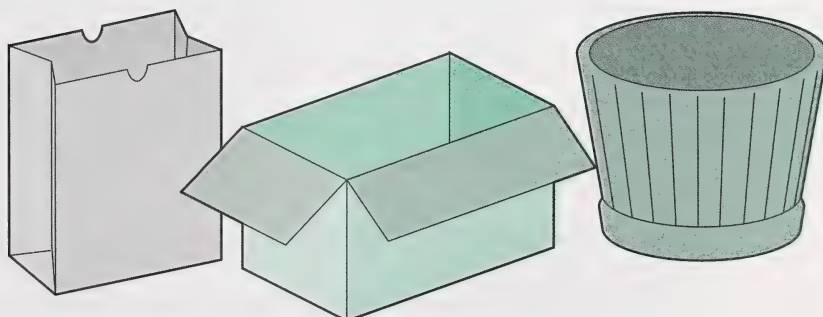


**Step 4:** Follow Steps 1 to 3 for the remainder of the containers.

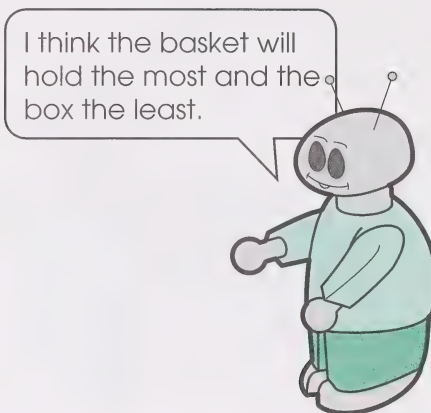
## Applying the Concept

### Volume from Most to Least

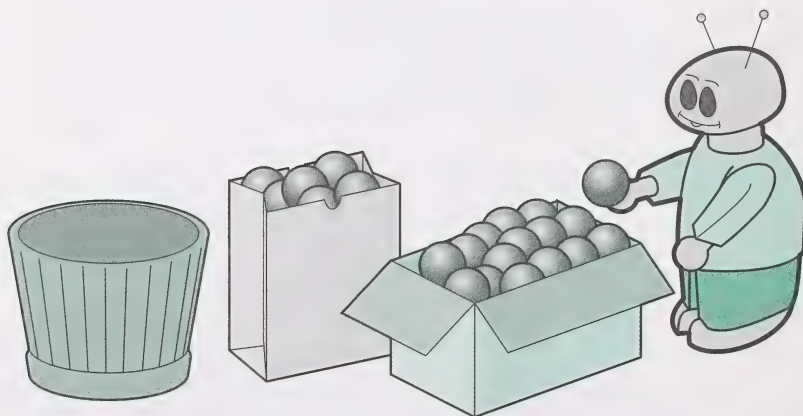
**Step 1:** Help the student choose three containers.



**Step 2:** Have the student estimate which container holds the **most** and which one holds the **least**. Then ask the student to arrange the three containers in order from the one that holds the **most** to the one that holds the **least**.



**Step 3:** Have the student check the estimate by filling each container with the same unit of measure, such as balls or interlocking cubes. If necessary, help the student count the units and record the findings.



**Step 4:** Follow Steps 1 to 3, using other sets of three containers.

When the student shows no difficulties sorting three containers according to most and least, repeat the activity using more than three containers.

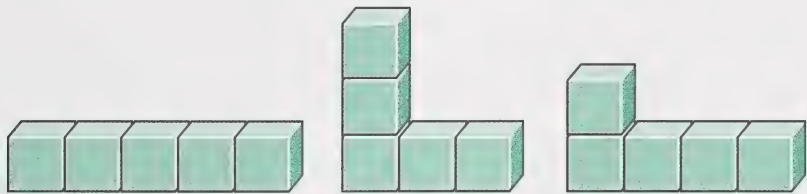




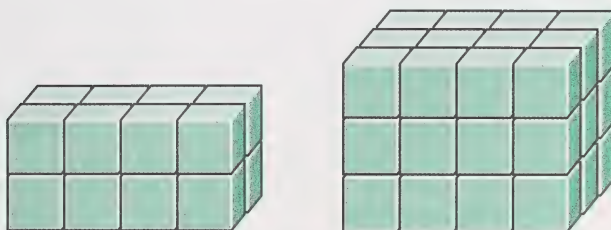
## Enrichment (optional)

### Exploring the Volume of Shapes

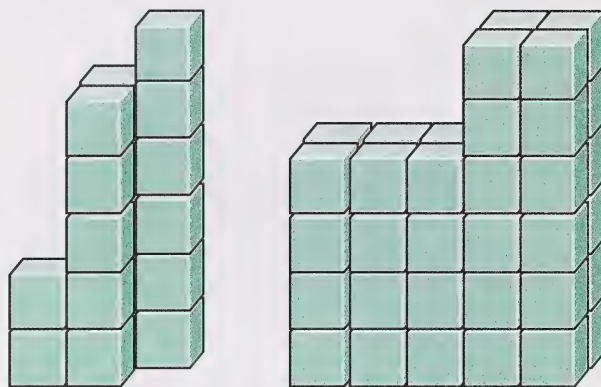
**Step 1:** Ask the student to discover how many different shapes can be made using five interlocking cubes or another suitable substitute. Repeat this step several times using different numbers of units.



**Step 2:** Build a **rectangular prism** with the cubes, and then ask a partner to estimate and count how many cubes the prism contains. Record the estimate and actual count, and compare them.



**Step 3:** Take turns building various shapes and then estimating, counting, and comparing how many cubes the shape contains.



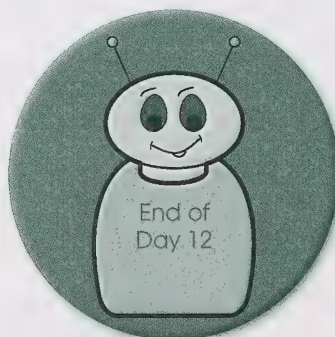
## Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8B, and follow the directions to do the assignment for Day 12.

Then complete Day 12: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to estimate, count, and compare the volume of different containers?



# Day 13



## Calendar Time

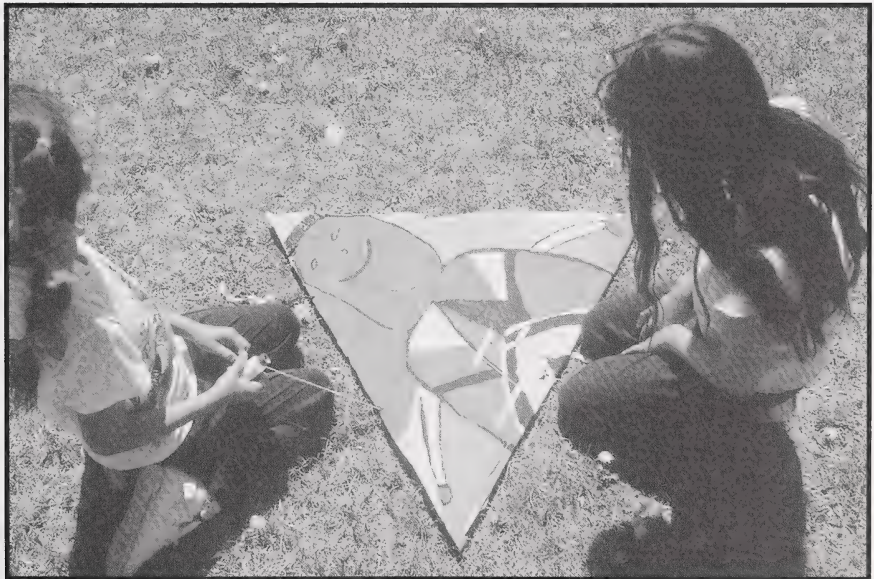
**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- developing the concept of area through observation and discussion of various kinds of covers
- demonstrating an understanding of cover (area) through illustrations and oral and written expression





### Vocabulary (spoken only)

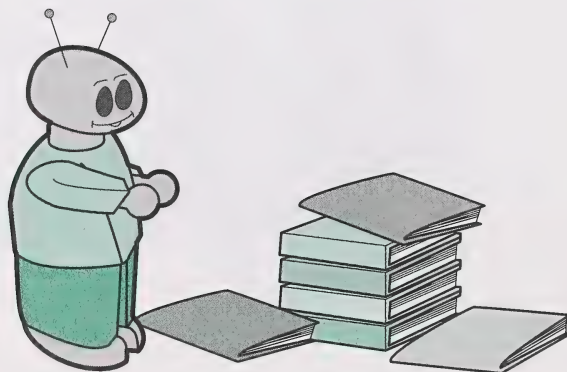
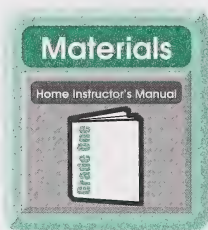
around  
covered/cover/covers  
area  
just about  
fringe  
liners  
rulers  
weave

### Materials Required

- box containing required materials from the master list
- catalogues and magazines
- large sheet of sturdy paper, approximately 21.5 centimetres by 35.5 centimetres (optional)
- clear, self-adhesive vinyl (optional)
- modelling dough (optional)

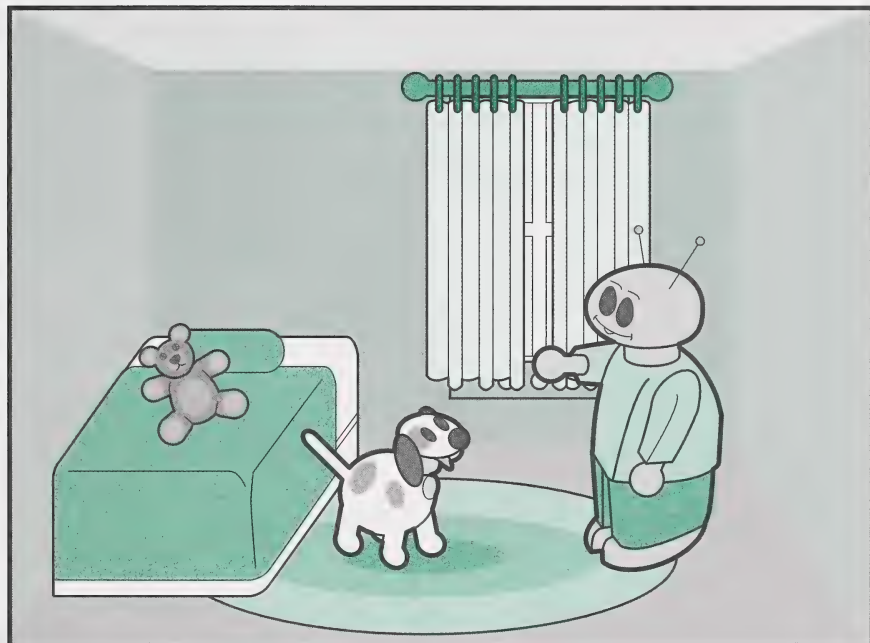
A recipe for the dough can be found in the Home Instructor's Manual.

- rolling pin (optional)
- various kinds and sizes of cookie cutters (optional)



## Developing the Concept

Take the student on a walk **around** the learning area, and talk about things that are **covered** and what the **cover** is. For example, a rug **covers** an **area** of the floor, a bedspread covers a bed, and a curtain covers a window.



Talk about how some things **just about** cover an area; for example, the rug in the picture above just about covers the floor.

## Applying the Concept

### All About Covers Booklet

**Step 1:** Fold one sheet of construction paper and two blank sheets of loose-leaf paper in half.

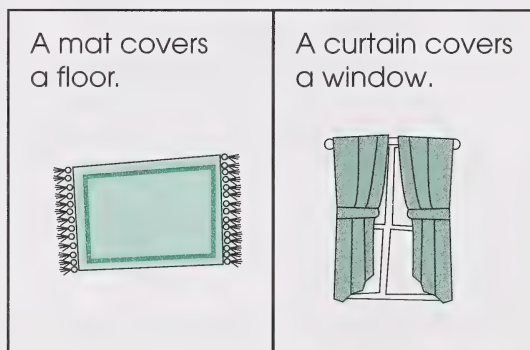
**Step 2:** Place the loose-leaf paper between the folds of the construction paper, and then staple the pages together along the fold.

**Step 3:** Ask the student to make a front cover similar to the one shown.



**Step 4:** Cut pictures from catalogues or magazines, or have the student draw pictures, to show cover.

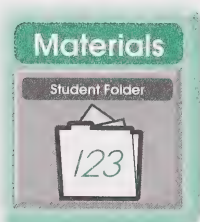
Help the student write a sentence to accompany each picture.



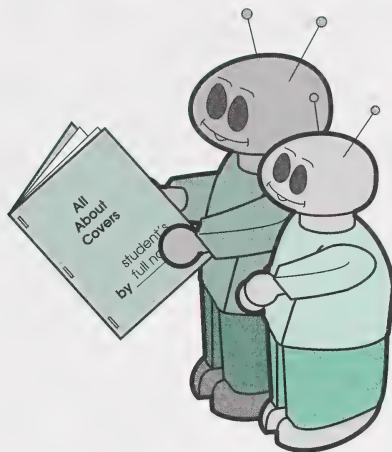
**Step 5:** On the back of the booklet, ask the student to print the abbreviated form of the module and day numbers, M8D13.

**Step 6:** Have the student read and talk about this booklet with family and friends.

When the booklet is not being shared with others, place it in the Student Folder.







## Enrichment (optional)

### 1. Cover the Placemats

Discuss how placemats are used to cover the area where a person is eating. Placemats are available in various kinds, shapes, and sizes. If you have any placemats, encourage your student to estimate and count how many units of various types will be needed to cover the surface of one placemat.

If you do not have any placemats available or if you want to do a fun activity, your student could make some placemats. Directions for two kinds of placemats follow.

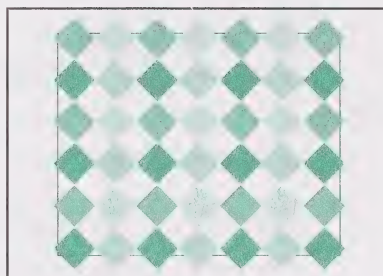


### Placemat Choice 1

For this choice, the student will need the following supplies:

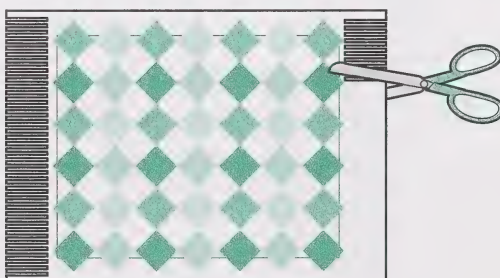
- a large sheet of paper
- crayons or markers
- bright-coloured pieces of paper
- glue
- clear, self-adhesive vinyl

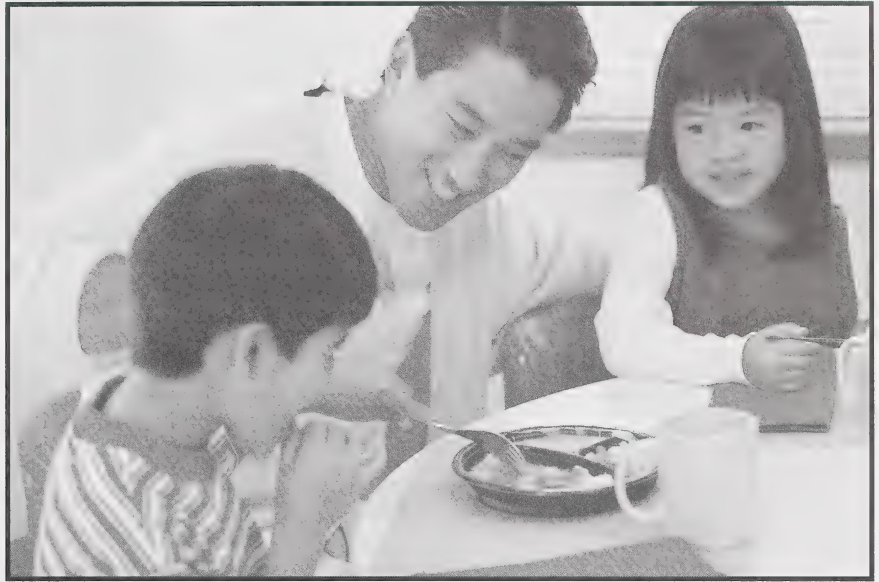
**Step 1:** Make a pattern or picture on a large piece of paper using crayons, markers, and coloured pieces of paper.



**Step 2:** You could cover the placemat with clear, self-adhesive vinyl, if you wish.

**Step 3:** Cut the ends of the placemat to make a **fringe**.



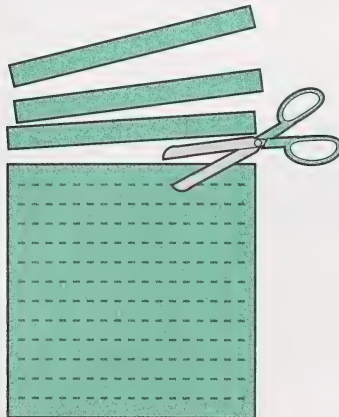


### Placemat Choice 2

For this choice, the student will need the following supplies:

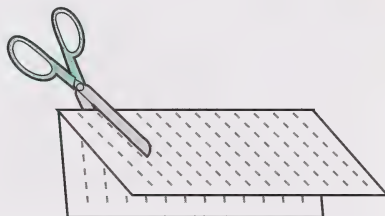
- two different-coloured sheets of construction paper
- safety scissors
- glue
- clear, self-adhesive vinyl

**Step 1:** On one sheet of construction paper, draw horizontal **lines** using your **ruler**. Cut the paper into strips.

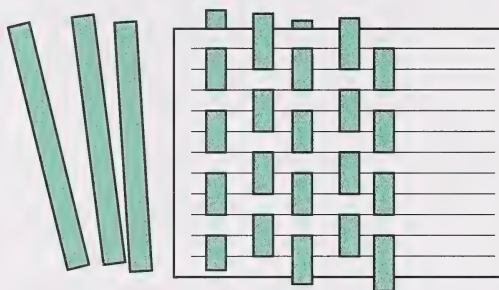




**Step 2:** Fold the other sheet of construction paper in half horizontally, and mark lines vertically from the fold almost to the edges. Cut on the lines.



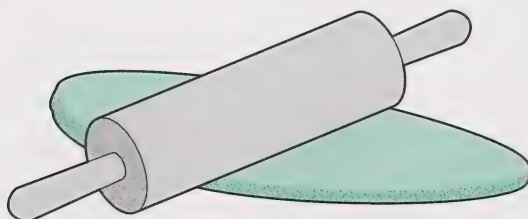
**Step 3:** Weave the strips through the mat to make a design. Glue the ends.



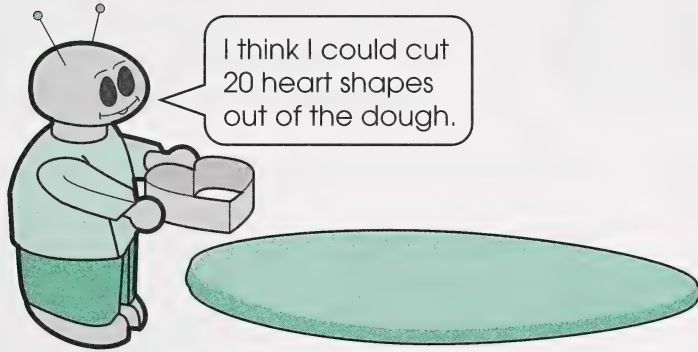
**Step 4:** Cover the mat with clear, self-adhesive vinyl, if you wish.

## 2. How Many Shapes?

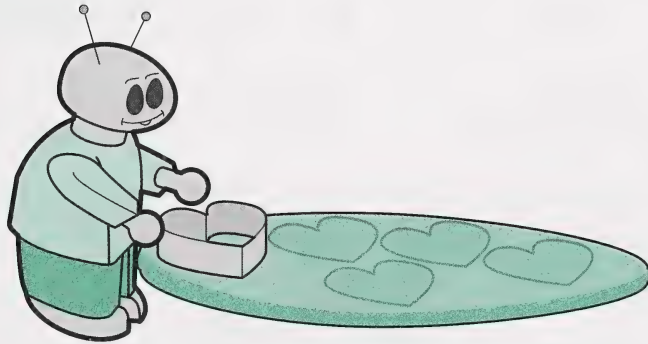
**Step 1:** Roll out the homemade modelling dough with a rolling pin.



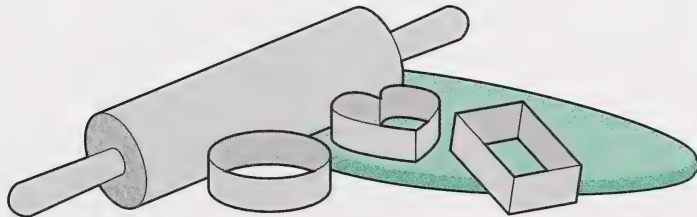
**Step 2:** Have the student choose a cookie cutter and estimate how many shapes could be cut out of the dough with that cookie cutter. Record the estimate.



**Step 3:** Have the student count and record approximately how many shapes can actually be cut out of the dough.

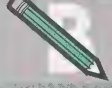


**Step 4:** Repeat the activity, using different cookie cutters.



### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8B, and complete Day 13: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to find and write about things that cover an area?





# Day 14



## Calendar Time

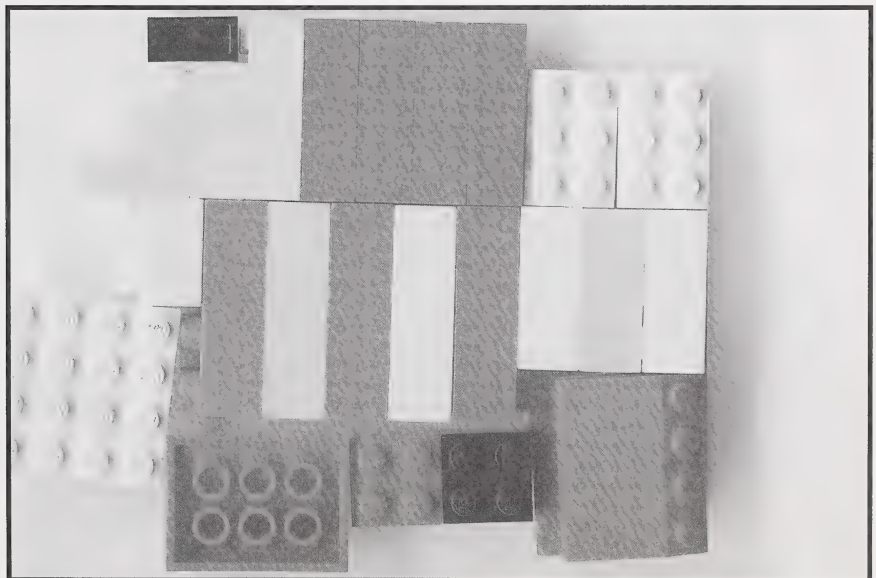
**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating the number of uniform and irregular objects or shapes that will cover an area
- covering and counting to verify the number of uniform and irregular objects or shapes that will cover an area
- comparing collected data using appropriate language, including quantitative terms such as *how many more*

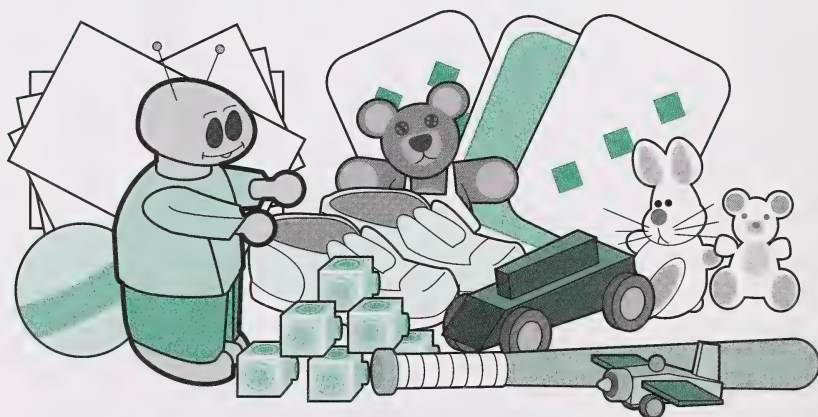
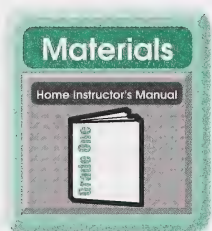


### Vocabulary (spoken only)

riddles  
appropriate  
uniform units  
irregular units

### Materials Required

- box containing required materials from the master list
- large sheet of paper, approximately 60 centimetres by 60 centimetres
- uniform units of measurement, such as index cards, playing cards, interlocking cubes, and erasers
- irregular units of measurement, for example, shoes, toys, and stuffed animals
- Pattern Blocks (See the Home Instructor's Manual under Manipulatives for more information on obtaining this item.) (optional)
- various items to be measured, for example, various kinds and sizes of books



## Developing the Concept

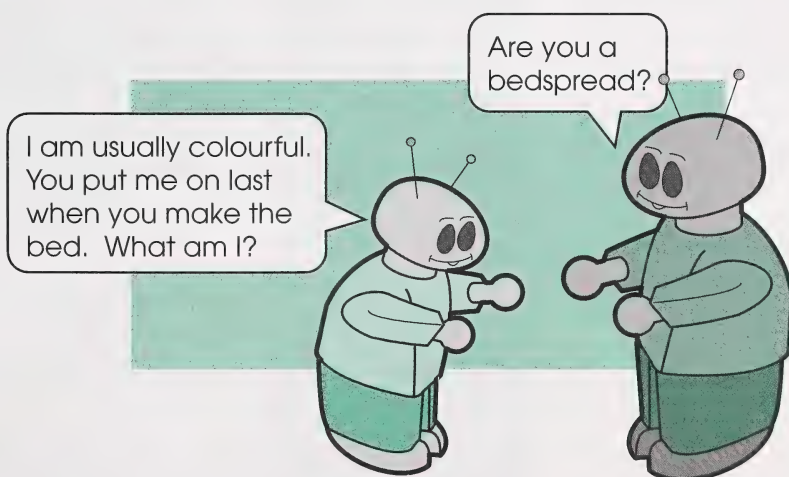
Ask the student to solve **riddles** about covers that you have around your learning area.

Some possible examples are as follows.

I am made of soft material.  
You sleep under me.  
What am I? (blanket)

I am made of paper.  
I cover something to read.  
What am I? (book cover)

Encourage the student to think of riddles about covers for you to solve as well.

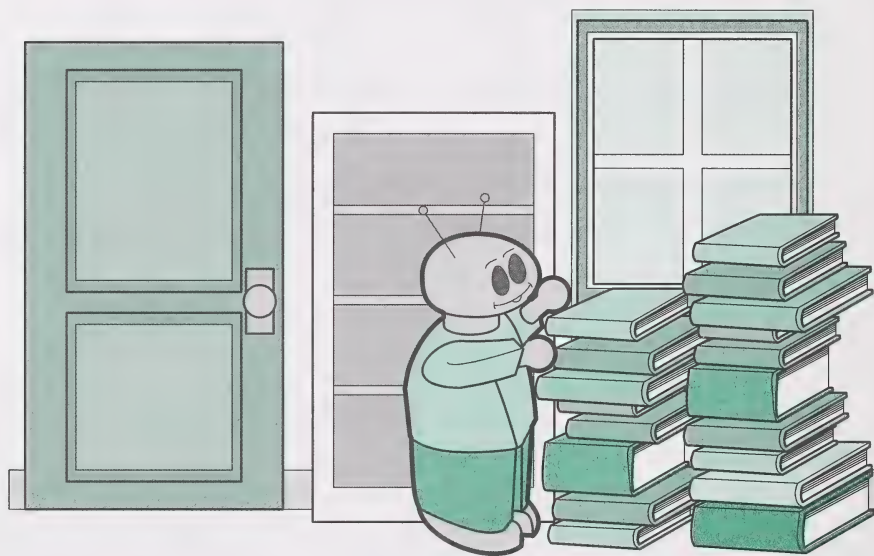


## Applying the Concept

Print the title **Four Steps for Measurement** on a large sheet of paper. Then print the following steps and discuss why each step is important:

- Choose a unit of measure.
- Estimate the measurement.
- Measure, using the chosen unit of measurement.
- Record the measurement.

Next, talk about and list **appropriate** units of measurement to cover the area of various things, for example, doors, windows, books, different sizes and shapes of box lids, and tables.

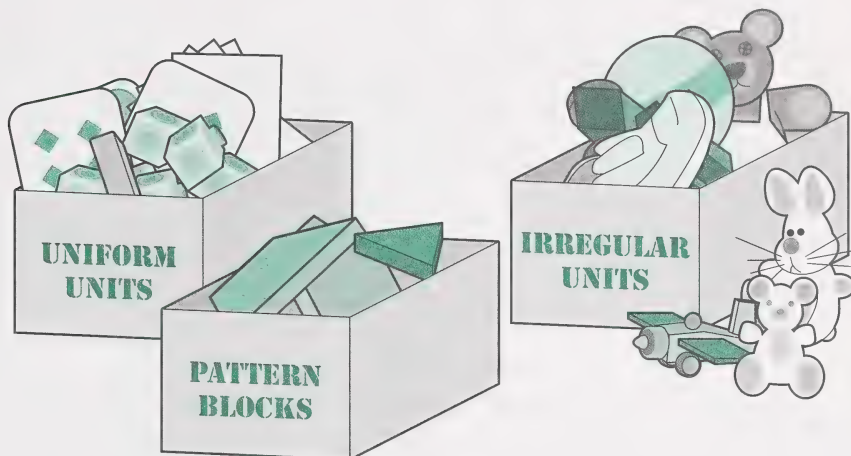


Help the student gather various **uniform units** of measurement, such as Pattern Blocks, file cards, playing cards, interlocking cubes, and erasers, and **irregular units** of measurement, such as shoes, toy cars, and teddy bears.

Note that Pattern Blocks can be used in both a uniform and an irregular way. See today's Enrichment activity for examples of ways they can be used.



Place the different units of measurement in separate containers.

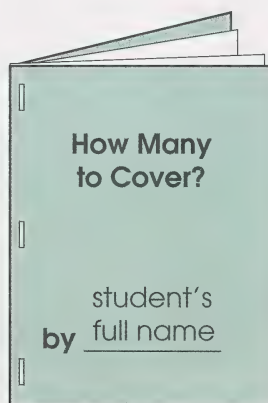


### How Many to Cover?

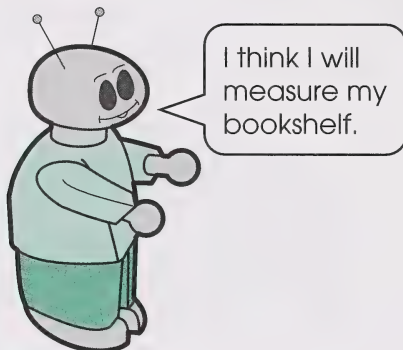
**Step 1:** Fold one sheet of construction paper and two sheets of blank loose-leaf paper in half.

Place the loose-leaf paper between the folds of the construction paper, and then staple the pages together along the fold.

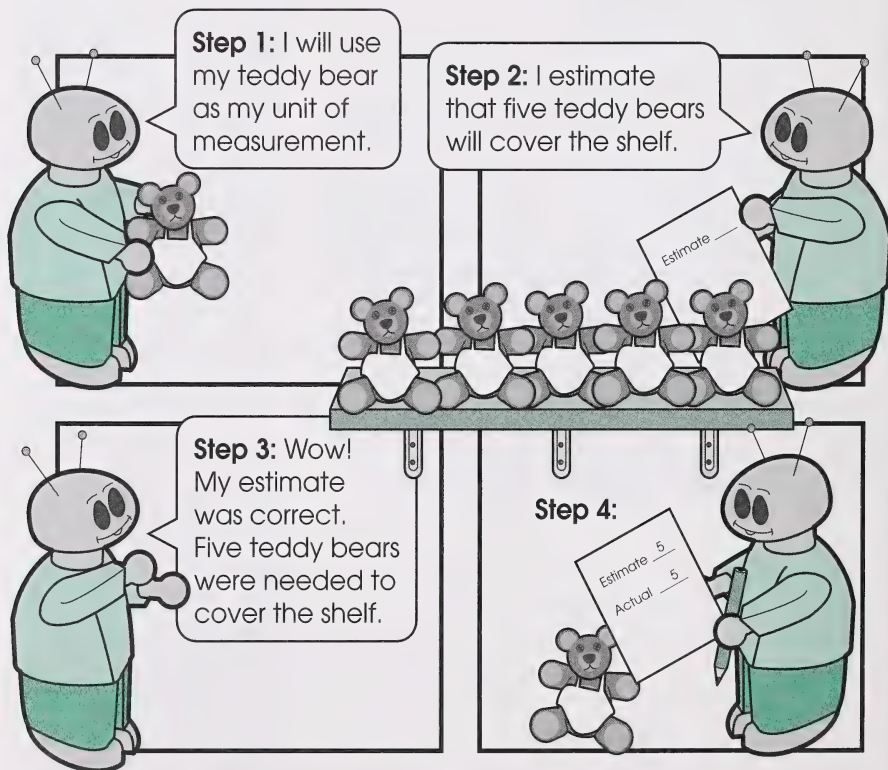
**Step 2:** Ask the student to make a front cover similar to the one shown.



**Step 3:** Have the student choose an item to measure.



**Step 4:** Follow the four steps for measurement that you printed in Applying the Concept.



**Step 5:** On the first inside page of the booklet, help the student record the activity in a way similar to the example that follows.

	Item to be measured _____
	Unit of Measurement _____
	Estimate _____
	Measurement _____

**Step 6:** Repeat Steps 4 to 6 with another three items. Guide the student to alternate between uniform and irregular units of measurement.

Record each estimate and measurement on a separate page of the booklet.

Item to be measured <b>table</b> _____	Item to be measured <b>book</b> _____
Unit of Measurement <b>playing cards</b> _____	Unit of Measurement <b>pattern blocks</b> _____
Estimate <b>50</b> _____	Estimate <b>20</b> _____
Measurement <b>48</b> _____	Measurement <b>23</b> _____

**Step 7:** On the back of the booklet, ask the student to print the abbreviated form of the module and day numbers, M8D14.

### Materials

Student Folder

123

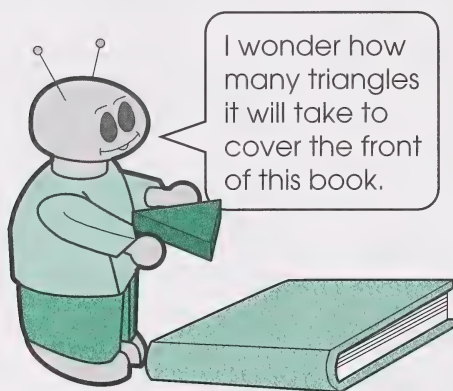
**Step 8:** Have the student read and talk about the booklet with family and friends.

When the booklet is not being shared with others, place it in the Student Folder.

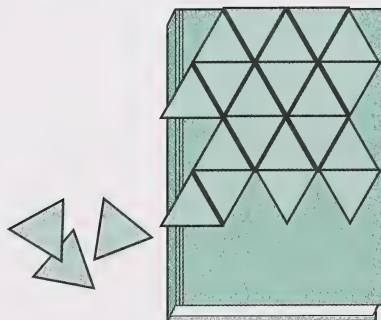
## Enrichment (optional)

### Cover with Pattern Blocks

**Step 1:** Have the student choose a Pattern Block and then estimate how many of that particular shape it would take to cover a book. Record the estimate and the shape.

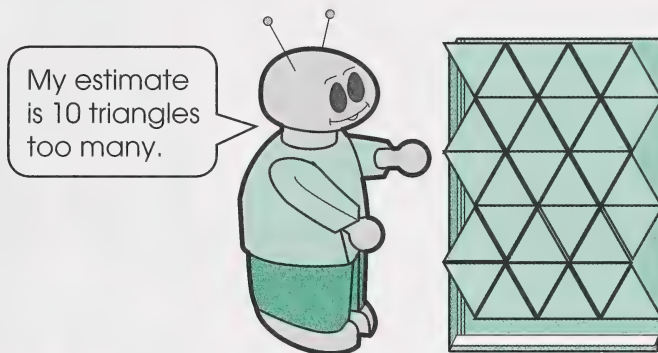


**Step 2:** Check the estimate by covering the book with the chosen shape. Record the actual count.



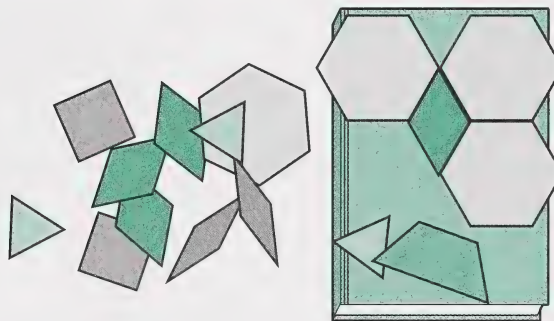


**Step 3:** Compare the estimate to the actual number used.

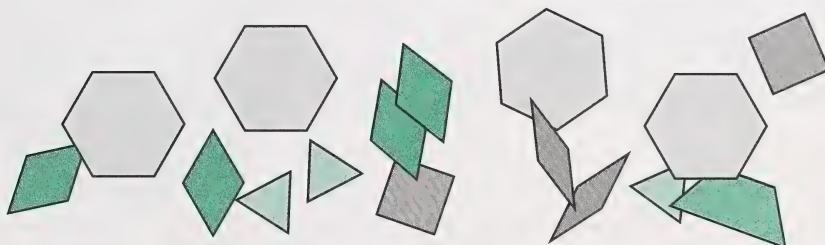


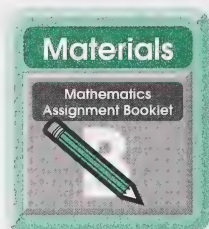
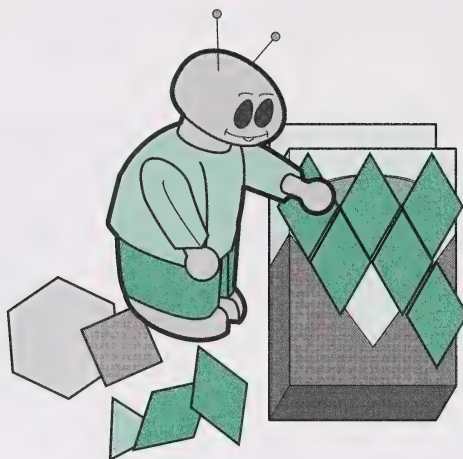
**Step 4:** Repeat Steps 1 to 3 until all the Pattern Block shapes have been used to estimate and measure the area of the book cover.

While involved in covering the front of the book, discuss which shapes are best for covering and why.



**Step 5:** Extend the activity by covering other items and using a variety of Pattern Block shapes to cover each area.





Turn to Mathematics Assignment Booklet 8B, and follow the directions to do Day 14: Assignment 1.

Next, follow the directions to complete Day 14: Assignment 2.

Then complete Day 14: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to estimate the number of uniform objects or shapes needed to cover the surface of an area? Was it easy or hard to verify by covering and counting?



# Day 15



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- describing the time of day when certain activities occur, for example, morning, afternoon, and evening
- developing an understanding of time-related vocabulary





### Vocabulary (spoken only)

time

sequencing of events

duration of time periods

morning

afternoon

evening

first

after

before

last

collage

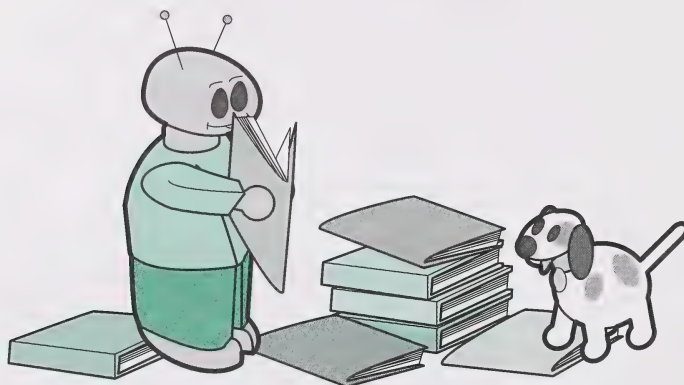
noon

night

shadow

### Materials Required

- box containing required materials from the master list



### Developing the Concept

#### Activities

##### Teaching Tip



**Time** is used to specify when an event occurred or will occur and also to describe how long an event lasted.

Judging the passage of times is not an easy task for children. Your student needs to have many experiences related to the **sequencing of events** and the **duration of time periods** before he or she is taught the process of telling time by reading clocks.

Talk about activities that you do in the **morning**, in the **afternoon**, and in the **evening**.



Discuss why some people choose to do a specific activity at certain times of the day and what might happen if they chose another time of the day to do the activity. For example, why do most people get up in the morning and go to sleep at night?

Through discussion, guide your student to consider as well why some people need to do activities at different times of the day. For example, why do some people go to sleep during the day and go to work at night?



Questions such as the following will also help the student develop concepts and vocabulary related to the sequencing of events.



When you get dressed in the **morning**, which do you put on **first**, your shoes or your socks?

When you get ready for bed, do you brush your teeth **after** you put on your pajamas or **before** you put on your pajamas?

What is the **last** thing you do **before** you go to bed?

Name some things you do **before** lunch.

What are some things you do **after** lunch?

List, in order, three things you do **after** you wake up on Sunday **mornings**.

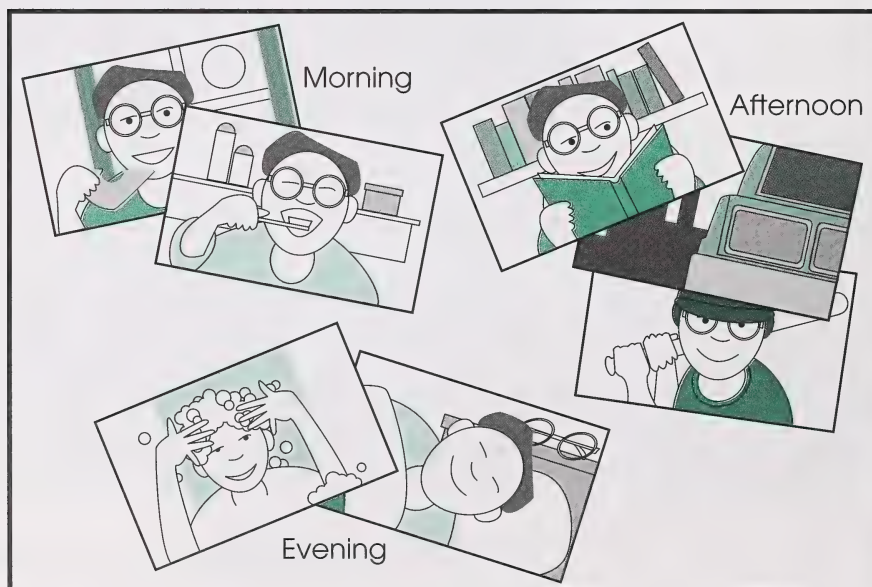
Continue with a few more similar types of questions until the student shows a good understanding of morning, afternoon, and evening activities, or until he or she gets tired.

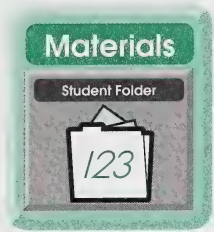
### Applying the Concept

Encourage the student to make a **collage**, similar to the one shown below, of morning, afternoon, and evening activities.

The student may choose to glue appropriate pictures from magazines or to draw pictures.

For any drawings, encourage the student to colour them and add interesting detail, for example, dinosaurs on pajamas.





When finished, have the student print full name and the abbreviated form of the module and day numbers, M8D15, on the back of the collage. Display the collage in a prominent place for a few days. Then place it in the Student Folder.

## Enrichment (optional)

### 1. Shadow Tag

The goal of Shadow Tag is to tag the person who is “It” by touching that person’s **shadow**.

The first person who touches the shadow then becomes “It.”

Play this game with family and friends on different days and at various times during the day.

After each game, take time to discuss what causes a shadow and how the length of a shadow is different in the morning, at noon, and in the evening.





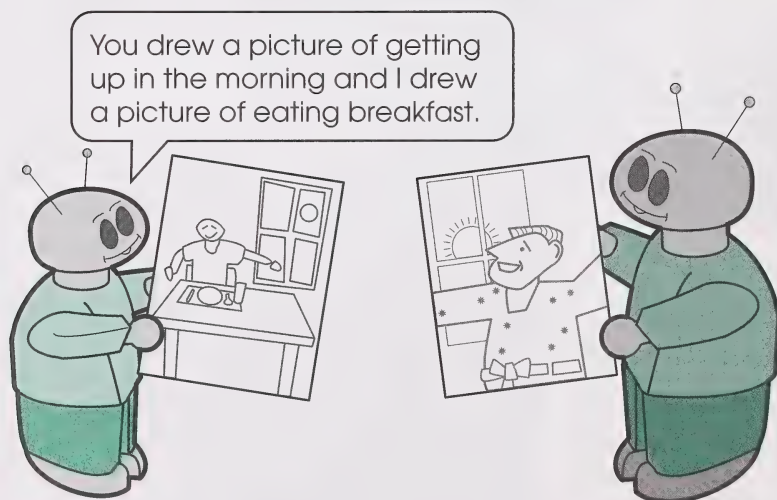
## 2. Good Morning, Good Afternoon, and Good Night

**Step 1:** Tell the student a word for a time of day—morning, **noon**, afternoon, evening, or **night**. Each of you draw a picture of an activity that you do during that time.



At the bottom of each picture, print one or two sentences about your drawing.

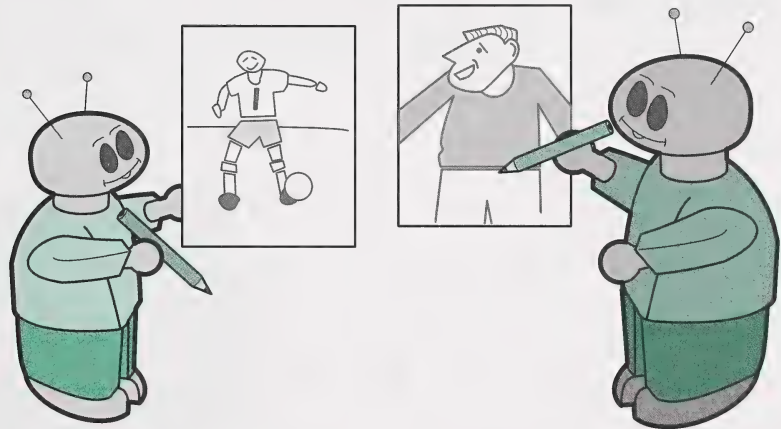
**Step 2:** Talk about the pictures, and discuss why each of you chose to draw the picture you did.





**Step 3:** Take turns saying a word for a certain time of day, for example, morning, and then each of you draw a picture of something you do at that time of day.

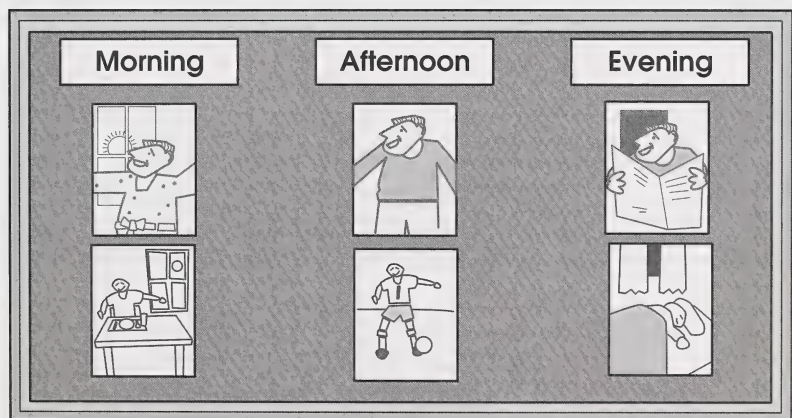
If the student draws an activity of something done at a different time of day than the one assigned, discuss the error, and then add a sentence about the time of day that is shown.



Wherever appropriate, discuss where the sun is at the assigned time of day, and demonstrate adding this detail to your pictures.

**Step 4:** Continue until the student has practised illustrating a variety of times of day or until the child gets tired.

Display the drawings on a bulletin board under the appropriate times.



### Materials

Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8B, and follow the directions to do the assignment for Day 15.

Then complete Day 15: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to describe the time of day when different activities take place?



# Day 16



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- estimating, measuring, recording, and comparing the passage of time, using nonstandard units of measurement
- comparing collected data using appropriate language, including quantitative terms such as *how long does it take*





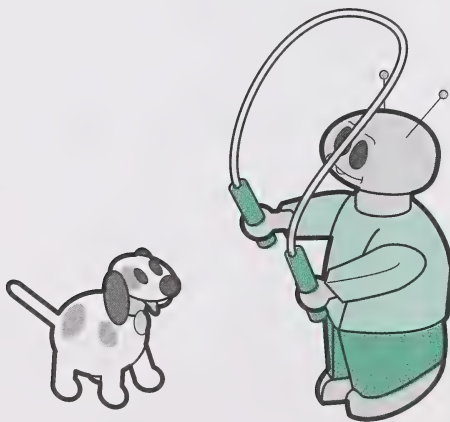
### Vocabulary (spoken only)

unit for measuring time  
longer  
how long  
repeated, regular action  
nonstandard unit  
increasing  
decreasing  
rate

around  
steady beat  
close  
duration of time  
longer  
catnap  
minute

### Materials Required

- box containing required materials from the master list
- items needed to perform some regular and repeated actions, for example, balls, skipping rope, rattle, metronome, and minute timer
- books about time (optional)
- stuffed toy cat or picture of a cat (optional)
- watch with a second hand (optional)



## Developing the Concept

### Activities

#### Teaching tip

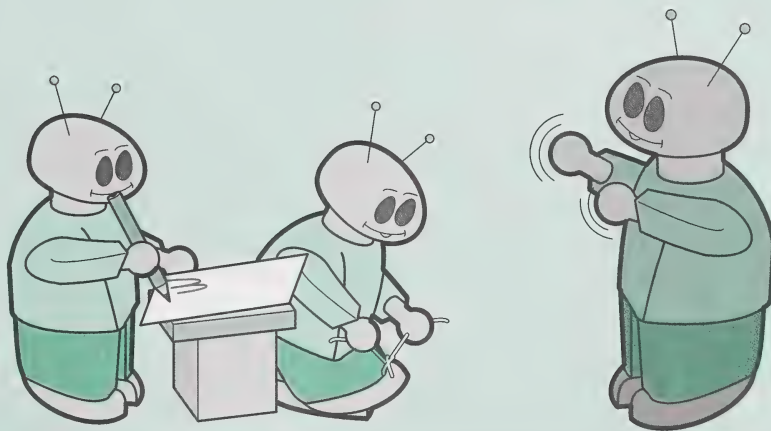


To establish the need for a **unit for measuring time**, the student will be asked to compare the times of two events that cannot be carried out at the same time. For example, the child can be given the task of figuring out whether it takes a person **longer** to print a name neatly or to tie the laces on a shoe.

The problem then becomes one of determining how to measure **how long** an event takes.

Any **repeated, regular action** can serve as a **nonstandard unit**. One procedure is to clap according to a steady beat.

Later, the student can experiment with **increasing** and **decreasing** the **rate** of clapping, and discuss the relationship between the rate and the number of claps associated with a given event.



Begin the discussion with the following script.

### Activities

#### Home Instructor's Script



How many hand claps do you think it will take for you to run **around** the room?

Practise clapping a steady beat with me for a little while, and then give me your estimate.

Record your estimate on this piece of paper.

After I say go, I will clap my hands to a **steady beat**, and you run around the room.

Go!

It took you \_\_\_\_\_ claps to run **around** the room.

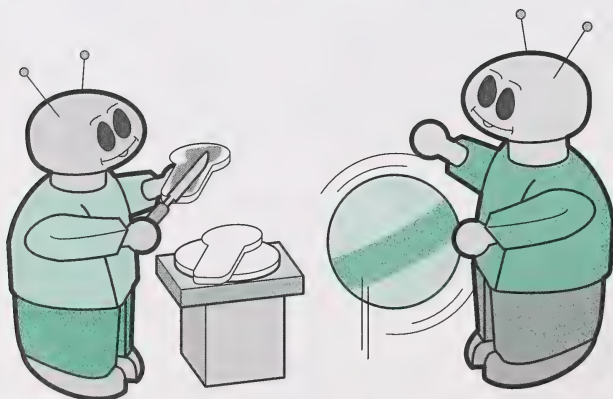
How **close** is your estimate to the actual number of claps that it took you to run **around** the room?

Experiment with different units and rates of measurement as well. Use a similar dialogue when comparing other activities.

### Applying the Concept

#### How Long Does It Take?

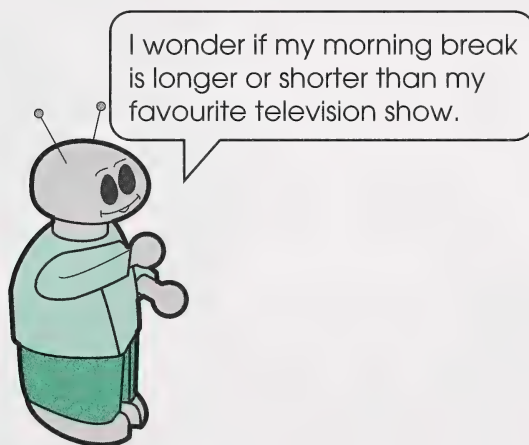
Take turns choosing a nonstandard unit of measurement to estimate, measure, and compare the **duration of time** needed to complete a variety of different activities. For example, the student could determine whether it would take **longer** to bounce a ball 50 times or to make a peanut-butter-and-jelly sandwich.





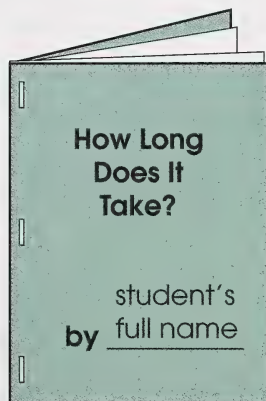
Other possible nonstandard units that the student could use to measure time are ball bounces, skip-rope jumps, and bubble-gum chews. Challenge the student to be creative, safe, and appropriate in choosing activities and units of measurement.

Use loose-leaf paper to record and compare the duration of activities, taking into consideration the units of measurement used.



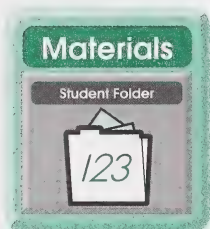
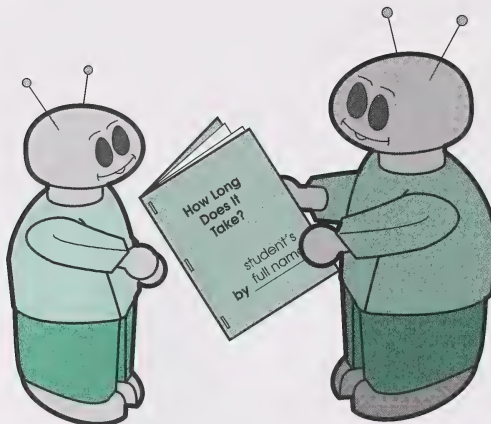
After approximately 20 minutes, ask the student to gather together the record sheets and place them between front and back cover pages. Staple the pages together to make a booklet.

Ask the student to make a front cover similar to the one shown.



On the back of the booklet, ask the student to print the abbreviated form of the module and day numbers, M8D16.

Encourage the student to read the booklet to family and friends.



When the booklet is not being shared, place it in the Student Folder.



## Enrichment (optional)

### 1. Books About Time

- *The Eleventh Hour* by Graeme Base
- *Hurry Up, Franklin* by Paulette Bourgeois
- *Around the Clock* by Judy Brooks
- *Jesse Bear, What Will You Wear?* by Nancy Carlstrom
- *What Time Is It?* by Judith Grey
- *What's the Time, Mr. Wolf?* by Colin Hawkins
- *Time and the Seasons* by Bobbie Kalman and Susan Hughes
- *My First Book of Time* by Claire Llewellyn
- *The Scarecrow Clock* by George Mendoza
- *Clocks in the Woods* by Leon Steinmetz
- *The Ten-Alarm Camp-Out* by Cathy Warren



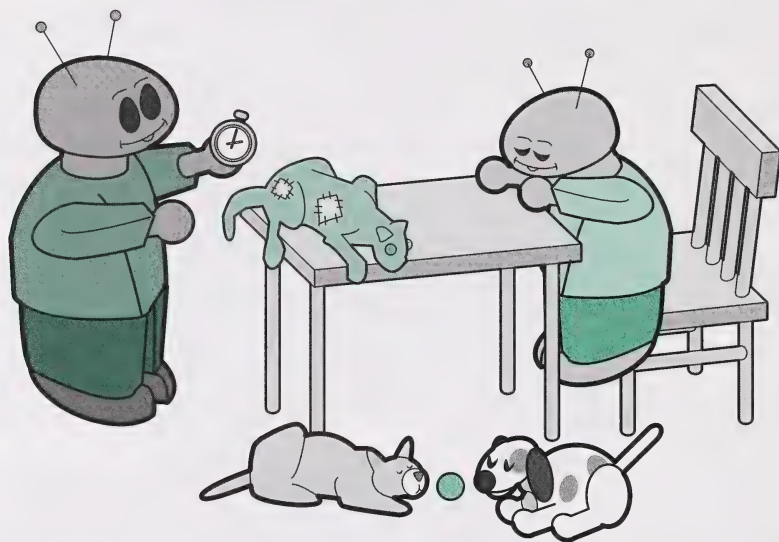
The book in this illustration is one possibility.

### 2. Catnap

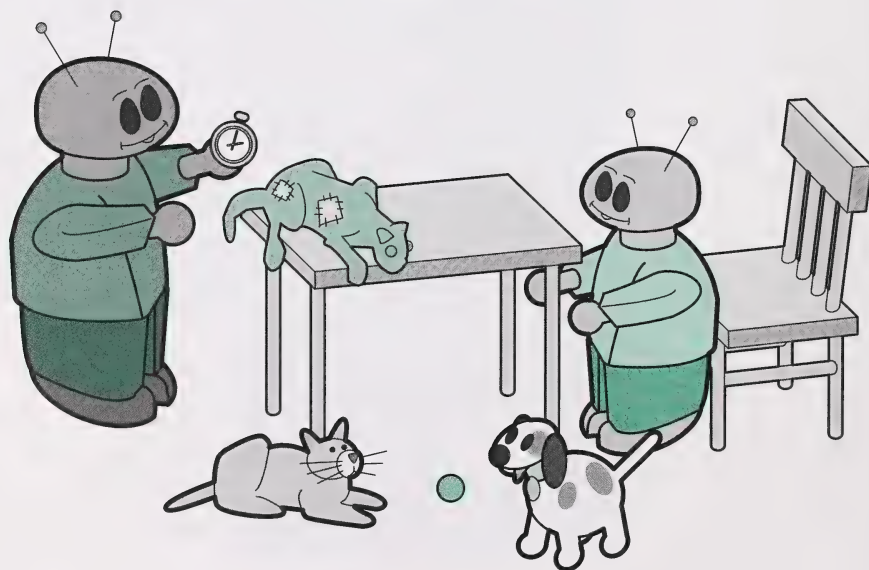
For this activity, take turns pretending to take one-minute naps and timing one another. You will need a watch or clock with a second hand and a stuffed toy cat or picture of a cat.



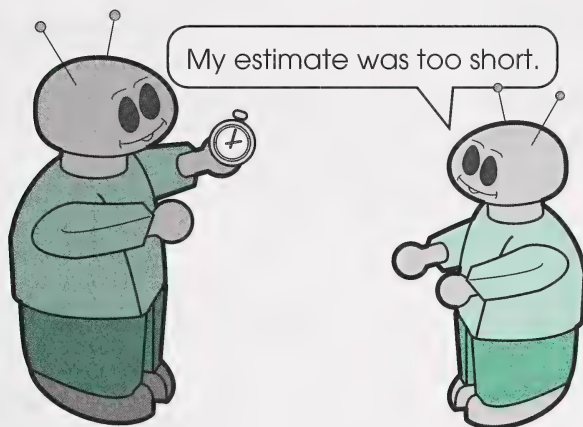
**Step 1:** Say “Catnap time,” and lay the toy cat down on the table. When one **minute** has passed, hold the cat up.



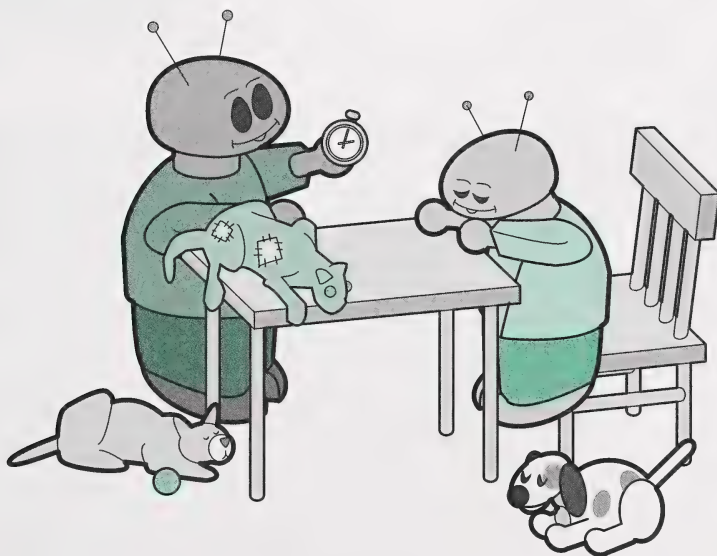
Ask the student to estimate when one minute is up and then look to see whether the cat is up. If it is, the student knows that more than one minute has passed. If it isn't, less than one minute has passed.

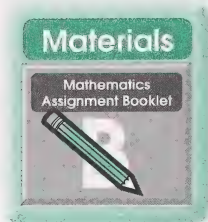


**Step 2:** Ask each other whether the time estimated was too long or too short. Continue the game until the estimates improve or until the student gets tired.



**Step 3:** Repeat this activity at other times, with different lengths of time, for example, one second, ten seconds, and five minutes.





Turn to Mathematics Assignment Booklet 8B, and complete the assignment for Day 16.

Then complete Day 16: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to use nonstandard units of measurement to measure time?





# Day 17



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- sequencing events within one day and over several days
- naming, in order, the days of the week and the seasons of the year
- describing and comparing temperatures, using the senses
- comparing collected data using appropriate language, including terms such as *day* and *week*

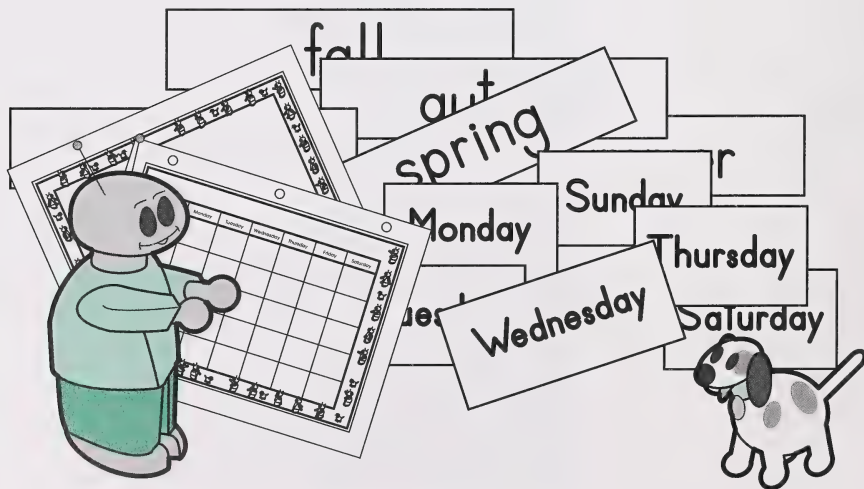


## Vocabulary (spoken only)

month	Saturday	winter	warm/warmer
day	today	autumn/fall	cool/cooler
week	yesterday	past	forecast
Sunday	tomorrow	present	inside
Monday	date	future	outside
Tuesday	year	events	boils
Wednesday	season	temperature	shivering
Thursday	spring	hot/hotter	frost
Friday	summer	cold/colder	frozen

## Materials Required

- box containing required materials from the master list
- the student's personal calendar and the following Calendar Package items: Sentence Starter cards, Days of the Week cards, Number cards, Seasons of the Year cards, Months of the Year cards, and Punctuation cards
- items with which to perform regular and repeated actions, for example, ball, skipping rope, rattle, metronome, and minute timer
- small items to use as "Olympic" awards, such as medallions made from ribbons and cardboard



## Developing the Concept

In addition to the regular calendar activities today, spend time doing the following activities. You will need the student's personal calendar and most of the cards in the Calendar Package.

As well, prepare three or four year cards by printing the current year on blank index cards.

### 1. Calendar Review

Use your student's personal calendar to have the child identify the following:

- the current **month** and **day** of the **week**
- the names of **today**, **yesterday**, and **tomorrow**
- the current **date**, as well as yesterday's date and tomorrow's date
- the **year**
- the name of the current **season** and the order of the seasons, beginning with **spring**
- **past**, **present**, and **future events** for the current month and the sequence of events



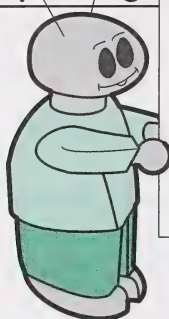


Today is Friday , April 6 , 20XX .

Yesterday was Thursday , April 5 , 20XX .

Tomorrow will be Saturday , April 7 , 20XX .

spring



April						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



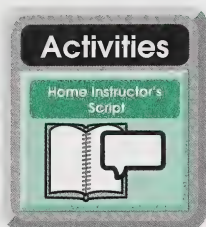
## 2. Weather Report

**Temperature** is a measure of how **hot**, **cold**, **warm**, or **cool** a person or object is.

Although temperature is not visible, large differences can be sensed by feel, and a child is able to notice even relatively small changes in room temperature.



Ask the following questions, using the terms *hot*, *cold*, *warm*, and *cool*, to help develop the concept of temperature.



Is it **warmer** today than **yesterday**? How can you tell?

Do you **forecast** that it will be **hotter** or **colder tomorrow**?

Is it **hotter** in **summer** or in **winter**?

Is it **cooler** on a **sunny day** or on a **cloudy day**?

Is it warmer **inside** your house or **outside** your house today?

How do you dress when you go **outside** on a **cold day**?

Name something you like to drink when it is **hot** outside.

What do you like to drink when it is **cold**?

We use the word **temperature** when we talk about how **hot** or **cold** something is.

What happens to water when it gets very **hot**? (It **boils**.)

How can you tell that an object, for example, a stovetop, is very **hot**? (It is red in colour.)

What can happen to you if you touch something that is very **hot**? (You can get burned.)

How can you tell that a person is very **cold**?  
(The person could be **shivering** or turning blue.)



How can you tell that meat or vegetables are very **cold**? (They are covered in **frost**, or they are **frozen**.)

### 3. Days of the Week

Randomly place the Days of the Week cards on a table, and take turns naming them and putting the cards in order, beginning with Sunday.

Occasionally, make an error to check the student's knowledge of the names and order.

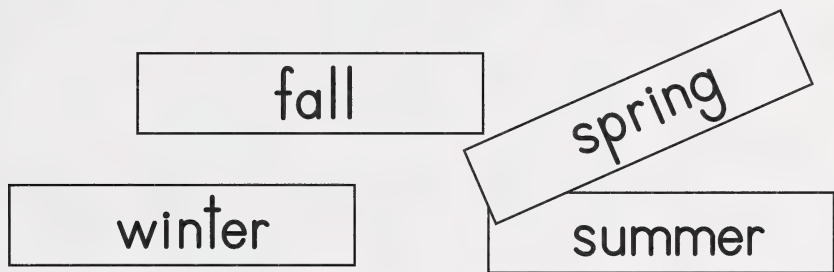




#### 4. Seasons of the Year

Randomly place the Seasons of the Year cards on a table. Take turns naming them, describing things about each season, and putting the cards in order, beginning with spring.

Occasionally, make an error to check the student's knowledge of the names, seasonal characteristics, and order.



#### Applying the Concept

##### “How Many?” Olympic Games

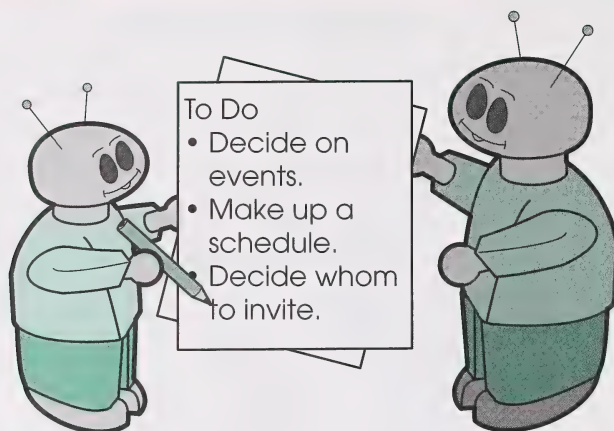
Organizing and participating in the “How Many?” Olympic Games will give you and the student the opportunity to use some of the measurement knowledge that has been taught so far.



It will take you and the student approximately one **week** to organize and participate in these games.

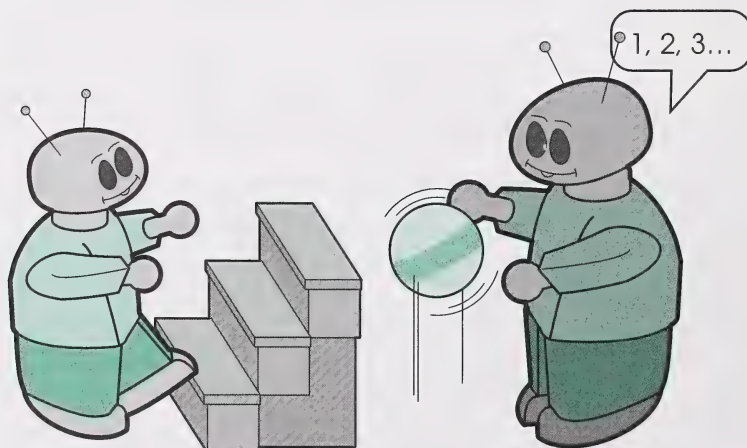
Guide the student to make a “to-do” list, and then set up a schedule for when you both think you can comfortably complete each activity on the list.

While you and the student are organizing the Olympic games, you will probably find that you can fit in the completion of Module 8: Day 18. The review of money in Day 18 will help the student in setting up an Olympic Store for souvenirs, nutritious snacks, and so on.

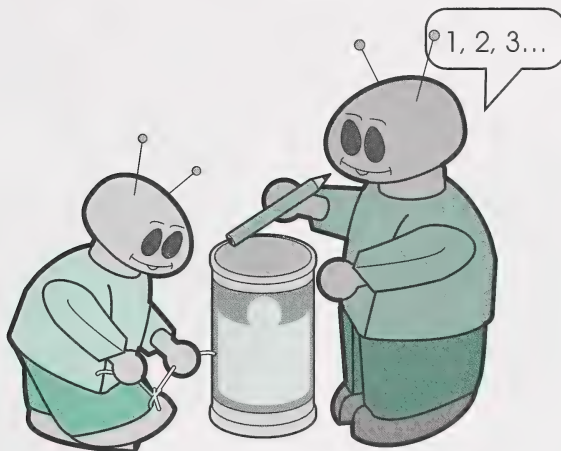


Begin by listing ideas for possible events and nonstandard measures for time, such as the following:

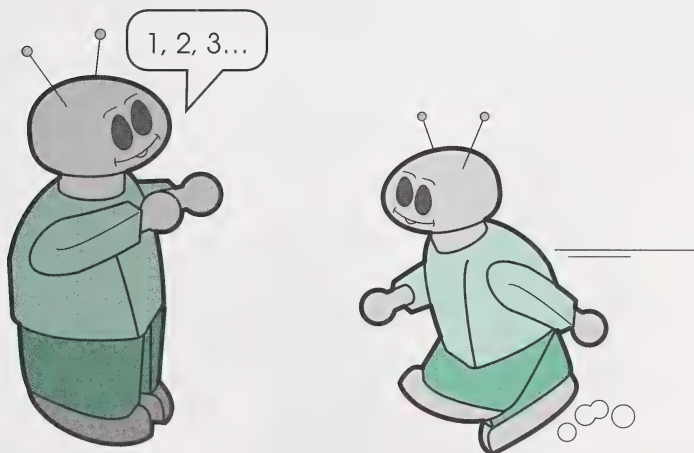
- Up and Down the Stairs
  - fastest time for walking carefully up and down a flight of stairs
  - measure time in ball bounces



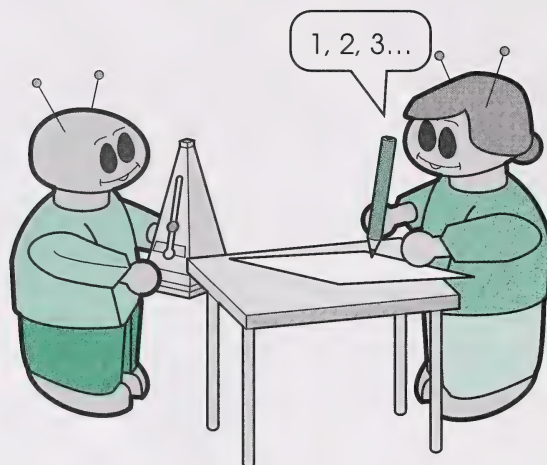
- Tying Shoelaces
  - fastest time for tying a pair of shoelaces
  - measure time in pencil taps on a can



- Running Around a Room
  - fastest time for running around a room three times
  - measure time in handclaps



- Printing Full Name Neatly
  - fastest time for printing your full name neatly
  - measure time in ticks of a metronome



Limit the events to five.

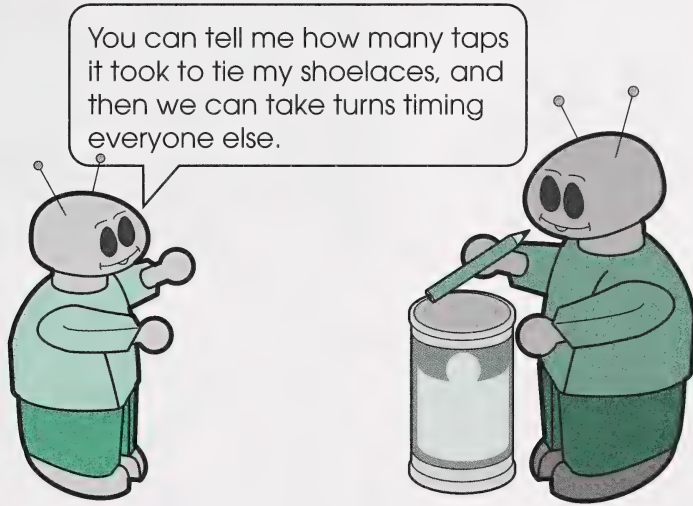
Once you have decided upon the events, check the child's personal calendar for a convenient date and time to invite family and friends to participate in the "How Many?" Olympic Games.



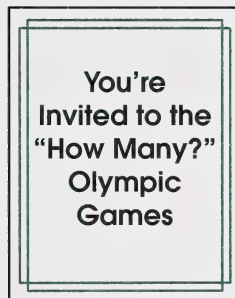
Purchase or create items to use as awards for the winners. For example, you could use ribbons and cardboard to make medallions.



Help the student delegate jobs and arrange times for people to work at your games. Some possible jobs might be timer, judge, awards presenter, and storekeeper.



Next, decide on the participants that you and the child would like to invite, and then create invitations that include the name of the event, where and when it will take place, and a request for a reply.



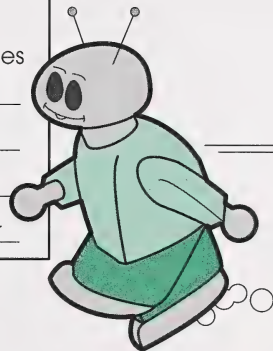
What: The  
"How Many?"  
Olympic Games

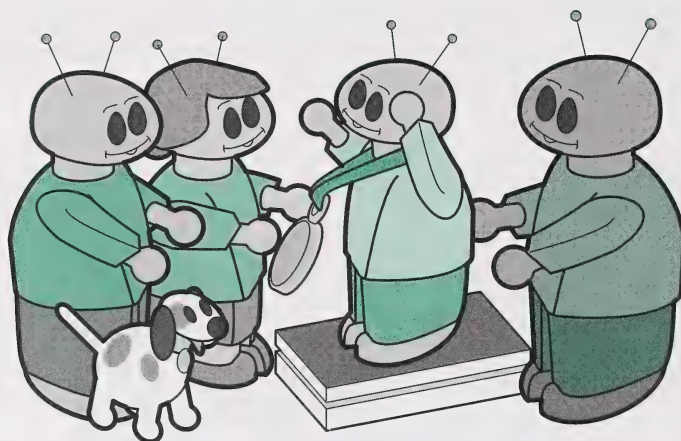
Where: \_\_\_\_\_

When: \_\_\_\_\_

RSVP by: date

Phone: number



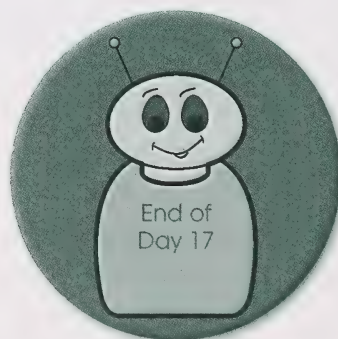
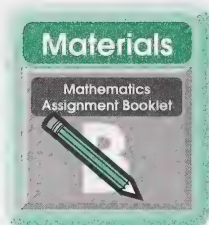


After you have created a draft invitation, turn to Mathematics Assignment Booklet 8B, and complete Day 17: Assignment 1.

Once you know the events and the participants, complete the first two steps of Day 17: Assignment 2.

During the “How Many?” Olympic Games, help the student complete the chart in Day 17: Assignment 2.

After the games, complete Day 17: Learning Log. Under Student’s Thoughts, print a sentence or two telling what the student thinks about the mathematics learning involved in the games. For example, was it easy or hard to think of events and units of measurement for the “How Many” Olympic Games?



# Day 18



## Calendar Time

**Time recommended: 10 minutes**

Begin your lesson with the daily calendar activities as usual.

## Focus for Today

**Time recommended: 45 minutes**

- recognizing and naming pennies, nickels, dimes, quarters, and dollars (loonies)
- stating the value, in cents, of a penny, a nickel, and a dime
- creating equivalent sets of coins up to ten cents in value
- developing an understanding of money-related vocabulary



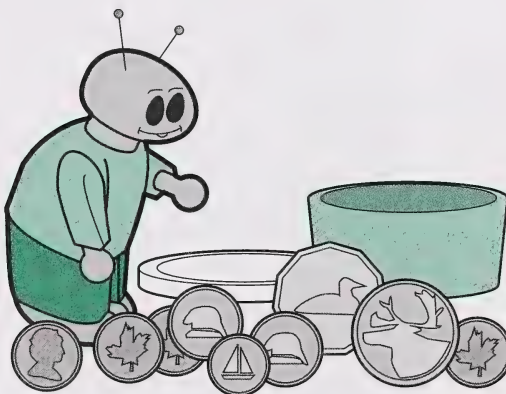


### Vocabulary (spoken only)

pennies	sale
nickels	cost
dimes	float
quarters	schedule
dollars/loonies	banker
coins	trade/trading
value	greatest/greater
equivalent	lesser
equal	

### Materials Required

- box containing required materials from the master list
- collection of coins, consisting of 100 pennies, 20 nickels, ten dimes, four quarters, and two dollars, or loonies
- made or purchased items for an Olympic Games Store, for example, stickers, sports trinkets, nutritious snacks, and water bottles
- change purse (optional)
- two plain trays (optional)

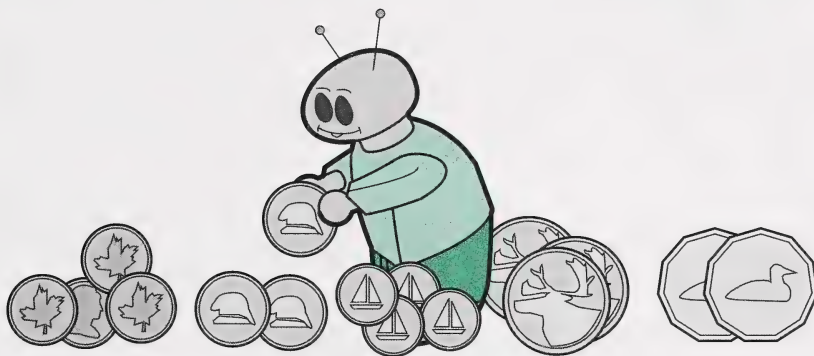




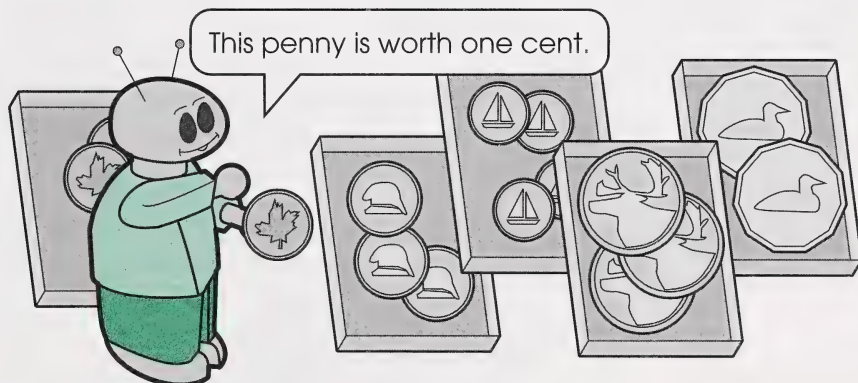
## Developing the Concept

In front of the student, place the collection of 100 **pennies**, 20 **nickels**, ten **dimes**, four **quarters**, and two **dollars**, or **loonies**.

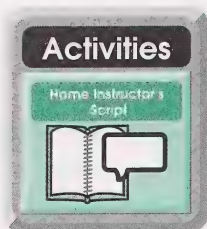
Ask the student to sort the **coins** into sets according to their **value**. Help the student as necessary.



Next, have the student name the types of coins found in each set and tell the value of each type.



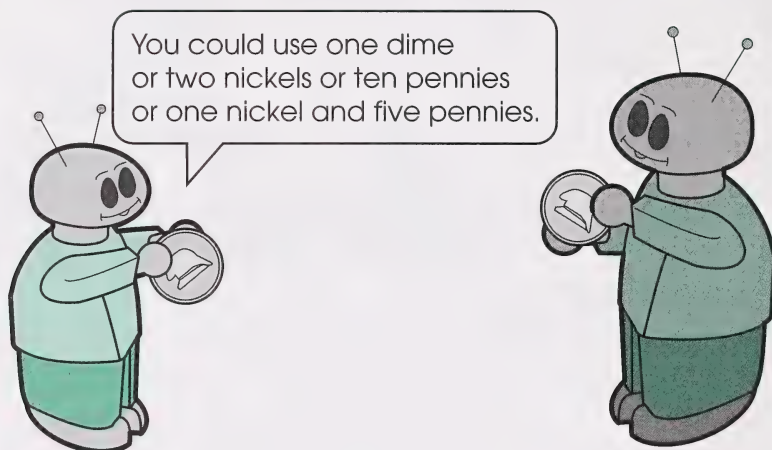
Now, involve the student in the following dialogue.



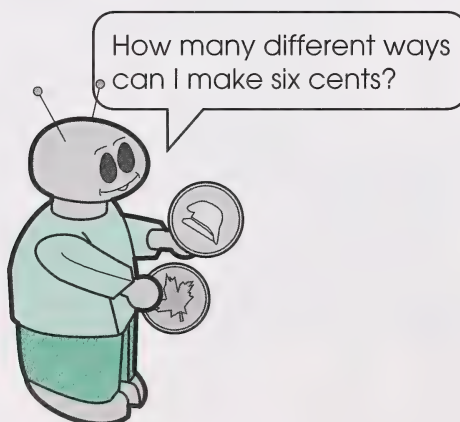
Show me how many pennies are **equivalent** to one **dime**. (ten)

How many **nickels equal** one dime? (two)

If you wanted to pay for a ten-cent candy, what are four different ways to do it?



Ask the student to use amounts from five cents to ten cents to find all the ways to show a different amount of money, for example, six cents.



## Materials

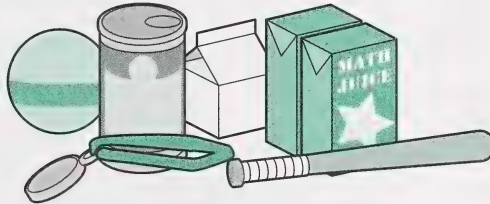
Mathematics  
Assignment Booklet



Turn to Mathematics Assignment Booklet 8B, and follow the directions to do Day 18: Assignment 1.

## Applying the Concept

Based on your Olympic Games activity, help the student set up an Olympic Games Store. For example, the student can make or buy items such as stickers, sports trinkets, nutritious snacks, and water bottles to sell in the store.



Each item for **sale** should **cost** no more than ten cents, and a customer can only purchase items up to a total value of ten cents at a time. Before opening the store for business, have available a **float** of 100 pennies and 20 nickels.

During the games, encourage the student to work in the store when not participating in other activities.

Help the student set up a store **schedule** as well, so that someone is taking care of the store before, during, and after the games.

### Store Schedule

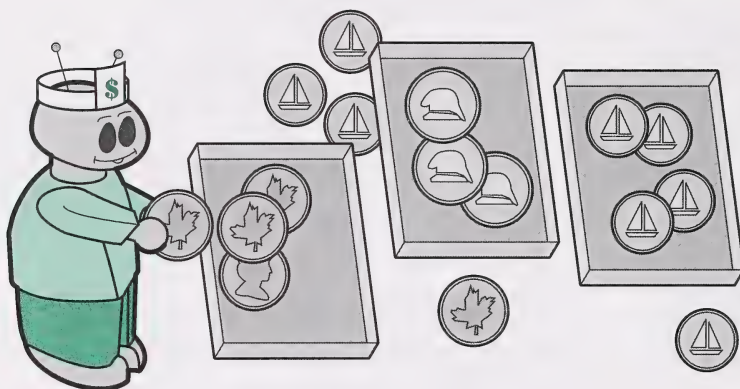
2:00–2:15	Mascot
2:15–2:45	Mom
2:45–3:00	Dad

## Enrichment (optional)

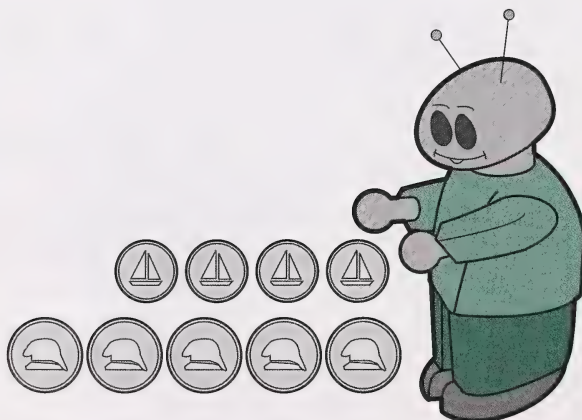
### 1. Trading Game

For this activity, you will need three containers, a coin purse, and 100 pennies, 20 nickels, and 10 dimes.

**Step 1:** Begin by assigning one person to be the **banker**. Have this person sort the collections of pennies, nickels, and dimes into separate containers and then place all the pennies in a coin purse.



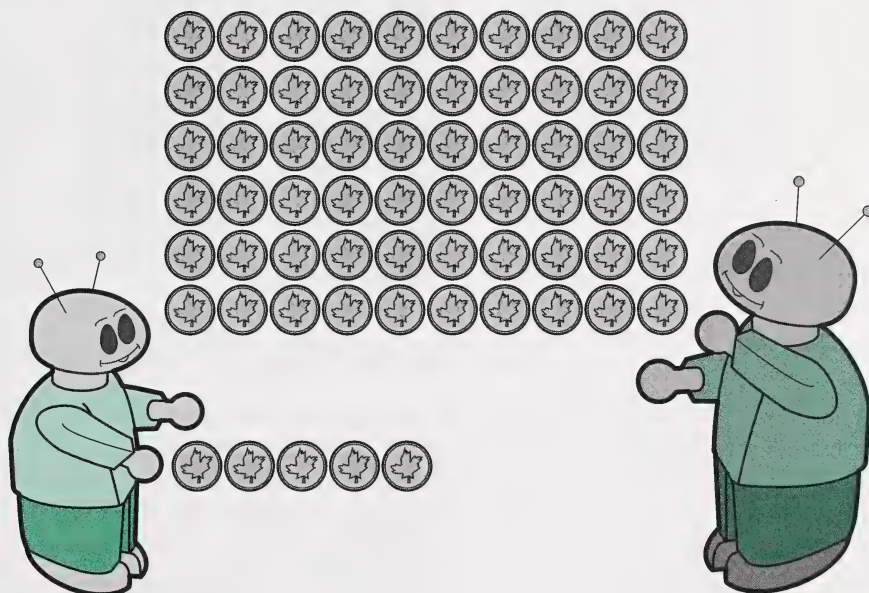
**Step 2:** Give the other player the coin purse. Have this person count the pennies in the purse and “go to the bank” to **trade** them for nickels or dimes.





**Step 3:** The player doing the trading can give the banker groups of five or ten pennies until no more **trading** is possible.

Then switch roles, and repeat the activity with different amounts of up to 100 cents in the purse.



**Step 4:** Continue this game until the student has had the opportunity to create equivalent sets of coins up to ten cents in value.

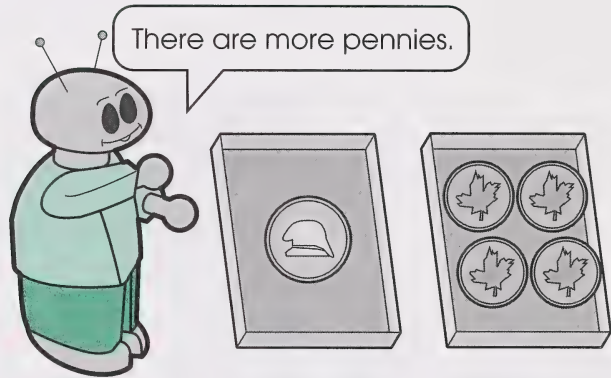
## 2. Which Amount Can Buy More?

Gather the following supplies:

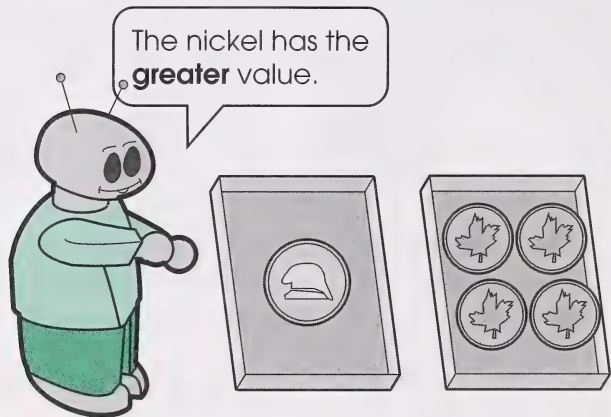
- two plain trays
- ten pennies
- two nickels
- one dime

**Step 1:** Place one nickel on one tray and four pennies on the other tray. Give one tray to the student, and you take the other tray. Ask the following question.

Which tray has more coins? (the one with four pennies)



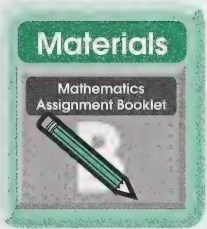
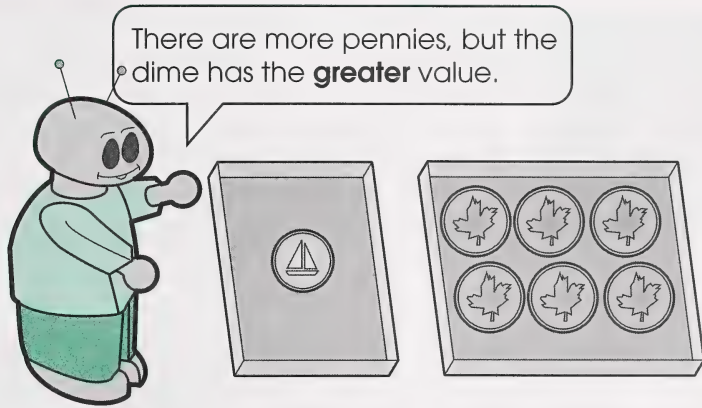
**Step 2:** Ask the student which tray shows the **greater** value.



**Step 3:** Repeat in the same way with other examples, such as comparing one dime with seven pennies or comparing one nickel with six pennies.

Have the student identify the **lesser** value each time as well.

Continue the activity until the student has had the opportunity to determine the greater or lesser value of sets of coins up to ten cents in value.

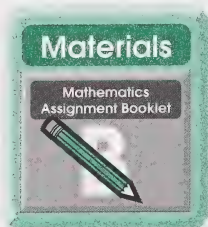


Turn to Mathematics Assignment Booklet 8B, and follow the directions to do Day 18: Assignment 2.

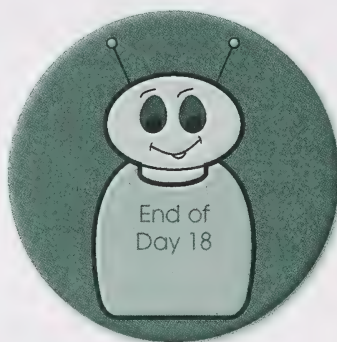
Then complete Day 18: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to state the value of pennies, nickels, and dimes and create equivalent sets of coins to ten cents in value?







At the end of Mathematics Assignment Booklet 8B, follow the directions to complete Day 18, Student Folder Items. Gather the required materials from your Student Folder. Submit these items and Assignment Booklet 8B to your student's teacher for marking at the time the teacher has requested them.



**Congratulations!**  
**You have completed**  
**Mathematics Module 8.**



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Gazelle Technologies, Inc.

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